Perfection, Progress and Evolution: A Study in the History of Ideas

Submitted by
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A thesis submitted in total fulfilment of the requirements for the degree of Doctor of Philosophy

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July 2002
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<td>Australian Association for the Advancement of Science</td>
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<td>ANZAAS</td>
<td>Australian and New Zealand Association for the Advancement of Science</td>
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<td>Dsc</td>
<td>Doctor of Science</td>
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<tr>
<td>Dlitt.</td>
<td>Doctor of Letters</td>
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<tr>
<td>EES</td>
<td>Eugenics Education Society</td>
</tr>
<tr>
<td>FRS</td>
<td>Fellow of the Royal Society</td>
</tr>
<tr>
<td>FRAS</td>
<td>Fellow of the Royal Anthropological Society</td>
</tr>
<tr>
<td>FRASA</td>
<td>Fellow of the Royal Anthropological Society of Australasia</td>
</tr>
<tr>
<td>MD</td>
<td><em>Medicinae Doctor</em> (Doctor of Medicine)</td>
</tr>
<tr>
<td>MP</td>
<td>Member of Parliament</td>
</tr>
<tr>
<td>SOMJ</td>
<td><em>Science of Man</em> and Journal of the Royal Anthropological Society of Australasia</td>
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<td>s.v.</td>
<td><em>sub verbo</em> (under the word; under the heading)</td>
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Summary

The study of perfection, progress and evolution is a central theme in the history of ideas. This thesis explores this theme seen and understood as part of a discourse in the new fields of anthropology, sociology and psychology in the nineteenth century. A particular focus is on the stance taken by philosophers, scientists and writers in the discussion of theories of human physical and mental evolution, as well as on their views concerning the nature of social progress and historical change. The wisdom and feasibility of improving the human species is discussed alongside an analysis of new methods of investigating and measuring physical and mental attributes of the human organism. The instruments used to assess the development of mind, body and society are described, and are viewed as part of an increased emphasis on the use of technology as an integral part of modern life, and as a means toward the ordered gathering of information in social-scientific practice. An international perspective is taken by observing the way in which ideas about the physical and mental development of humankind was discussed in light and consequence of English and European scientific exploration in the Southern Hemisphere. Further, an evaluation is made of the manner of the spread of new thought in the social sciences from the intellectual and cultural ‘centre’ of England and Europe to the Anglo-European community located at the ‘periphery’ in Australia in the late nineteenth century. In particular the educative role played by the non-professional enthusiast as a pivotal conduit for the dissemination of these ideas is highlighted and linked back to a significant tradition of amateur scholarship as a central phenomenon in the study of the history of ideas.
Preface

The motivation for undertaking the thesis presented here is a long held interest in and enthusiasm for the history of ideas. This interest has been closely connected with an appreciation of ‘the interdisciplinary approach’. Neither is well understood as a method of proceeding with research, and it was my objective to attempt a synthesis of the two in the hope that I might both contribute to and encourage others to further efforts in this direction. I chose as my topic one which has at one and the same time been a ‘staple’ for historians of ideas (for example the early twentieth century American philosopher Arthur O. Lovejoy) and one which remains a centre of interest if not debate within many disciplines within the social sciences and humanities. The topic was the complex association between the ‘idea of perfection’, the ‘idea of progress’ and the ‘idea of evolution’. I understood these as making up an emotionally charged ‘web of belief’ and I wanted to explore them as part of a ‘complex of ideas’ which has influenced individuals and directed change in the social sciences over the period 1795 to 1914. My aim was to elucidate the connection or interrelationship between the three themes; to demonstrate how those themes were understood across the boundaries of disciplines, and to show these themes as constituting dynamic intellectual and even intrapsychic problems for individuals in particular places at particular times.

My purpose was also to show that the study of that interrelationship could best be approached as a subject for investigation by recognising that it was not merely a metahistorical or metatheoretical issue. Indeed method is not at the strategic centre of this thesis. Rather the approach embraces a different rationale: one suggested by the English philosopher Mark Bevir (1999: 88–9) which states ‘that we [as historians of ideas] should not dismiss the search for evidence. We should reject only the idea that the search for evidence should take a particular form’. Taking the position offered by Bevir (1999: 61) that ‘all historical meanings are either meanings for individuals or abstractions derived from meanings for individuals’, what would be at the strategic centre of this thesis is the relationship between people and the ideas in which they believed; and between people and people and the ideas in which they believed.
For this reason this thesis eschews an overt discussion of such issues as the merits of, or tension between methodological individualism and methodological holism as preferred approaches to research in the social sciences. I do not choose between the two. I have chosen rather to ‘oscillate’ like the phenomenon elucidated in the ideas themselves; to oscillate between the perspective on the idea of perfectibility and social progress of a utopian philosopher/mathematician like the Marquis de Condorcet ([1795] 1955) and a sceptical historian/essayist like Thomas Carlyle (1829). Or there is drawn out here the contrast between the labours of a pragmatic optimist like the psychologist Francis Galton (1865; 1883; 1885; 1901; 1908) and those of a didactic theorist such as the sociologist Herbert Spencer (1851; 1857; 1860). And further the effort is made to establish a contrast between the objectives of the scientifically curious French aristocrats of the Société des observateurs de l’homme and the scientifically curious mid-Victorians who formed the first editorial board of the journal Nature. There is also here an attempt to show how the great ship of ideas—to paraphrase Karl Pearson (1914–30, 2: 69)—was surrounded by a host of smaller vessels of intellect. The discussion of the idea of perfection, progress and evolution in the work of major authors in this thesis, is augmented by discussion of perfection, progress and evolution in the work of minor authors. Major English and European identities are contrasted with lesser-known or now forgotten individuals, like the ‘amateur’ Australian journal editor and anthropologist Dr Alan Carroll, who nevertheless served as a conduit for conveying ideas to a wider audience in a small, isolated and very distant part of the world.

Difficulties arose in taking A. O. Lovejoy’s (1936; 1940; 1948) approach as a model. Lovejoy was enormously well acquainted with a wide European literature and was able to evaluate that literature in Latin and in French. For me a problem arose in looking particularly to French sources for inspiration and discussion in the areas of anthropology and education. As a non-French speaker this led to a reliance on the translations and commentaries of others. This was particularly the case when a text which was potentially useful for the discussion of evolution and race had not been translated at all. I was buffeted in this way between primary and secondary sources in the case of French anthropology in the eighteenth century. So that the complete version of George Cuvier’s (1800) ‘Instructive note on the researches to be made relative to the anatomical differences between diverse races of man’, has never been translated into English although it is contemporary with Matthew Flinders’s (1801–03) circumnavigation of Australia at a time when both French and English scientific interest in the land-mass of Australasia was at its height. The only source is ‘extracts’ contained within a secondary source discussion of French
anthropology in 1800 by George Stocking published in 1964. As late as 1988 in an
exploration of the contribution of French artists to the early depiction of the
southern lands, Australian scholars were still relying on Stocking’s limited
translation. It was not possible for me to access the personal papers for most of the
individuals discussed in this thesis when those papers are in archival collections in
England, Europe and America, often in widely scattered locations. The letters and
papers of Francis Galton which have been catalogued by Merrington and Golden
(1976) for instance, are held in the library of London University. Here the ‘tyranny
of distance’ impacted on my work in a real way. Yet even for those with greater
access ‘few Galton books are available in modern reprints and his numerous
[original] papers are lost in nineteenth-century periodicals’ (Keynes 1993: 3).
However, his journal articles are readily available for analysis (as are those of most
of the great Victorian scientists and essayists) in Australia’s major state libraries,
and Karl Pearson’s (1914–30) great biography has never been bettered for its
thorough documentation of his teacher’s life and work. Such, that most Galton
scholars would still look to it for inspiration to some extent.

Yet secondary sources were viewed in another and positive way. The balanced
use of primary and secondary sources is possible when the secondary sources
themselves serve to illuminate a point being made: that all thinkers are influenced by
the social and intellectual environments in which they work, and whose ‘history’
and values they have internalised. In 1958 the English historian Asa Briggs wrote a
foreword to the Centenary edition to Samuel Smiles’s Victorian bestseller Self-Help
(1859). Aside from the analysis of Smiles’s place in Victorian literature and of Self-
Help as a work of literature, Lord Briggs, is able to ask ‘what is the place of self-
help in the welfare state, where social contingencies are met by government action?
In a 1996 reprint of Smiles’s Self-Help, Lord Harris of High Cross, in an essay
titled ‘A New Consensus for the Millennium’ laments the very existence of the
welfare state; reading into Smiles’s work an anodyne for the debilitating affects of
‘state benevolence’ under both Conservative and New Labour governments. He
suggests that rather than dismissing the Victorian author’s gospel of self-
sufficiency as quaint ‘Victorian values’ Smiles’s recipe of self-improvement
through self-help provides the answer to the major social problems besetting the end
of the twentieth century. The use of secondary sources can tell us where—as far as
ideas are concerned—we have come from in relation to certain themes and where we
currently stand intellectually in relation to those themes. After all the discussion of
intellectual change itself is about a centuries long process of the sifting of concepts
and beliefs through many minds in a dynamic relationship with time, place and
scholastic fashion.
Most texts regarded as indispensable to scholarship in the field of the history of ideas and in the areas specific to the themes of this thesis, are Anglo-American in their focus. This I regarded as a challenge, and it largely determined the choice of an English, French and Australian focus to the themes discussed. I found it sometimes difficult to reconcile the dominance of the Anglo-American interpretation in virtually all matters relating to the development of society through the nineteenth and twentieth century, with my desire to somehow include some analysis which was Australia-centred. Consequently a background influence for me was the tension of acknowledging that scholarship at the centre and the efforts by those seeking to make a contribution from the periphery was an effort to justify Lovejoy’s (1948: 3) statement that ‘ideas are commodities which enter into interstate commerce’.

The problems which I encountered in doing this thesis mirror many of the problems encountered by others in doing certain kinds of research at the periphery whatever the discipline concerned. Not to be at the centre can be a real limitation; a limitation which is more than geographic. It is an emotional one also—the sense of being cut off from the mainstream.

Finally, I was encouraged in approaching my topic by an awareness of the seeming diminution of interest in the importance of the ‘themes and variations’ of European ideas as a worthwhile subject for research in Australian higher education; and as a still relevant field for understanding our cultural beginnings and our ongoing progress. I perceive that by taking an interdisciplinary approach to research in the social sciences and humanities our enthusiasm for intellectual history can be reinvigorated and maintained. In the immediate future the search for an appropriate ‘method’ seems the most urgent requisite for this type of research. It will perhaps be one which takes a ‘pluralistic’ approach as to methodology and one which broadens rather than narrows the definition of thesis. For while wisdom decrees that a successful thesis will be ‘narrow and deep’ a willingness to explore beyond defined boundaries—once again recognising the wisdom of Lovejoy (1940: 4) when he wrote that ‘ideas are the most migratory things in the world’—is to recognise the nature of the attempt which I made here.

At a technical level, the consideration of what constitutes the material appropriate for exploration and extrapolation within and across the boundaries of disciplines I considered as important as the writing of the thesis itself. For this reason, as well as using and perusing conventional ‘texts’, that is the written word, I also took a keen interest in visual material which might be useful in illustrating the biographical, technical and scientific as well as the literary and artistic dimensions of the thesis. In
line with Lovejoy’s (1936; 1940; 1948) admonition that researchers cooperate with others in the promotion of intellectual history I regarded the involvement of those with particular expertise as vital in undertaking this thesis.

I acknowledge the staff of the Borchardt Library at La Trobe University; in particular Margot Hyslop for her help in obtaining detailed information about publishing histories of Australian books and serials. Richard Overell, Rare Books Librarian at Monash University for allowing me access to fragile book materials and his willingness to facilitate the production of reproductions from these sources. To this end Adrian Dyer of the Physics Department Photographic Service in the Faculty of Science at Monash University gave valuable advice. The staff of the Mitchell and Dixson Libraries at the State Library of New South Wales were helpful in locating material related to Dr Alan Carroll. I also thank Simon Conti of The Mary Evans Picture Library, London, for ‘chasing up’ a desired image of the Marquis de Condorcet and making this available to me.

I thank my supervisor’s Dr Bob Bessant and Dr Lorraine Ling of the Institute for Education for their guidance during the research and writing of this thesis.
Statement of Authorship

Except where reference is made in the text of the thesis, this thesis contains no material published elsewhere or extracted in whole or in part from a thesis by which I have qualified for or been awarded another degree or diploma.

No other person’s work has been used without due acknowledgment in the main text of the thesis.

This thesis has not been submitted for the award of any degree or diploma in any other tertiary institution.
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<tr>
<td>AAAS</td>
<td>Australian Association for the Advancement of Science</td>
</tr>
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<td>ANZAAS</td>
<td>Australian and New Zealand Association for the Advancement of Science</td>
</tr>
<tr>
<td>Dsc</td>
<td>Doctor of Science</td>
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<tr>
<td>Dlitt.</td>
<td>Doctor of Letters</td>
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<tr>
<td>EES</td>
<td>Eugenics Education Society</td>
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<tr>
<td>FRS</td>
<td>Fellow of the Royal Society</td>
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<td>FRAS</td>
<td>Fellow of the Royal Anthropological Society</td>
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<tr>
<td>FRASA</td>
<td>Fellow of the Royal Anthropological Society of Australasia</td>
</tr>
<tr>
<td>MD</td>
<td><em>Medicinae Doctor</em> (Doctor of Medicine)</td>
</tr>
<tr>
<td>MP</td>
<td>Member of Parliament</td>
</tr>
<tr>
<td>SOMJ</td>
<td><em>Science of Man</em> and Journal of the Royal Anthropological Society of Australasia</td>
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Summary

The study of perfection, progress and evolution is a central theme in the history of ideas. This thesis explores this theme seen and understood as part of a discourse in the new fields of anthropology, sociology and psychology in the nineteenth century. A particular focus is on the stance taken by philosophers, scientists and writers in the discussion of theories of human physical and mental evolution, as well as on their views concerning the nature of social progress and historical change. The wisdom and feasibility of improving the human species is discussed alongside an analysis of new methods of investigating and measuring physical and mental attributes of the human organism. The instruments used to assess the development of mind, body and society are described, and are viewed as part of an increased emphasis on the use of technology as an integral part of modern life, and as a means toward the ordered gathering of information in social-scientific practice. An international perspective is taken by observing the way in which ideas about the physical and mental development of humankind was discussed in light and consequence of English and European scientific exploration in the Southern Hemisphere. Further, an evaluation is made of the manner of the spread of new thought in the social sciences from the intellectual and cultural ‘centre’ of England and Europe to the Anglo-European community located at the ‘periphery’ in Australia in the late nineteenth century. In particular the educative role played by the non-professional enthusiast as a pivotal conduit for the dissemination of these ideas is highlighted and linked back to a significant tradition of amateur scholarship as a central phenomenon in the study of the history of ideas.
Preface

The motivation for undertaking the thesis presented here is a long held interest in and enthusiasm for the history of ideas. This interest has been closely connected with an appreciation of ‘the interdisciplinary approach’. Neither is well understood as a method of proceeding with research, and it was my objective to attempt a synthesis of the two in the hope that I might both contribute to and encourage others to further efforts in this direction. I chose as my topic one which has at one and the same time been a ‘staple’ for historians of ideas (for example the early twentieth century American philosopher Arthur O. Lovejoy) and one which remains a centre of interest if not debate within many disciplines within the social sciences and humanities. The topic was the complex association between the ‘idea of perfection’, the ‘idea of progress’ and the ‘idea of evolution’. I understood these as making up an emotionally charged ‘web of belief’ and I wanted to explore them as part of a ‘complex of ideas’ which has influenced individuals and directed change in the social sciences over the period 1795 to 1914. My aim was to elucidate the connection or interrelationship between the three themes; to demonstrate how those themes were understood across the boundaries of disciplines, and to show these themes as constituting dynamic intellectual and even intrapsychic problems for individuals in particular places at particular times.

My purpose was also to show that the study of that interrelationship could best be approached as a subject for investigation by recognising that it was not merely a metahistorical or metatheoretical issue. Indeed method is not at the strategic centre of this thesis. Rather the approach embraces a different rationale: one suggested by the English philosopher Mark Bevir (1999: 88–9) which states ‘that we [as historians of ideas] should not dismiss the search for evidence. We should reject only the idea that the search for evidence should take a particular form’. Taking the position offered by Bevir (1999: 61) that ‘all historical meanings are either meanings for individuals or abstractions derived from meanings for individuals’, what would be at the strategic centre of this thesis is the relationship between people and the ideas in which they believed; and between people and people and the ideas in which they believed.
For this reason this thesis eschews an overt discussion of such issues as the merits of, or tension between methodological individualism and methodological holism as preferred approaches to research in the social sciences. I do not choose between the two. I have chosen rather to ‘oscillate’ like the phenomenon elucidated in the ideas themselves; to oscillate between the perspective on the idea of perfectibility and social progress of a utopian philosopher/mathematician like the Marquis de Condorcet ([1795] 1955) and a sceptical historian/essayist like Thomas Carlyle (1829). Or there is drawn out here the contrast between the labours of a pragmatic optimist like the psychologist Francis Galton (1865; 1883; 1885; 1901; 1908) and those of a didactic theorist such as the sociologist Herbert Spencer (1851; 1857; 1860). And further the effort is made to establish a contrast between the objectives of the scientifically curious French aristocrats of the Société des observateurs de l’homme and the scientifically curious mid-Victorians who formed the first editorial board of the journal *Nature*. There is also here an attempt to show how the great ship of ideas—to paraphrase Karl Pearson (1914–30, 2: 69)—was surrounded by a host of smaller vessels of intellect. The discussion of the idea of perfection, progress and evolution in the work of major authors in this thesis, is augmented by discussion of perfection, progress and evolution in the work of minor authors. Major English and European identities are contrasted with lesser-known or now forgotten individuals, like the ‘amateur’ Australian journal editor and anthropologist Dr Alan Carroll, who nevertheless served as a conduit for conveying ideas to a wider audience in a small, isolated and very distant part of the world.

Difficulties arose in taking A. O. Lovejoy’s (1936; 1940; 1948) approach as a model. Lovejoy was enormously well acquainted with a wide European literature and was able to evaluate that literature in Latin and in French. For me a problem arose in looking particularly to French sources for inspiration and discussion in the areas of anthropology and education. As a non-French speaker this led to a reliance on the translations and commentaries of others. This was particularly the case when a text which was potentially useful for the discussion of evolution and race had not been translated at all. I was buffeted in this way between primary and secondary sources in the case of French anthropology in the eighteenth century. So that the complete version of George Cuvier’s (1800) ‘Instructive note on the researches to be made relative to the anatomical differences between diverse races of man’, has never been translated into English although it is contemporary with Matthew Flinders’s (1801–03) circumnavigation of Australia at a time when both French and English scientific interest in the land-mass of Australasia was at its height. The only source is ‘extracts’ contained within a secondary source discussion of French
anthropology in 1800 by George Stocking published in 1964. As late as 1988 in an exploration of the contribution of French artists to the early depiction of the southern lands, Australian scholars were still relying on Stocking’s limited translation. It was not possible for me to access the personal papers for most of the individuals discussed in this thesis when those papers are in archival collections in England, Europe and America, often in widely scattered locations. The letters and papers of Francis Galton which have been catalogued by Merrington and Golden (1976) for instance, are held in the library of London University. Here the ‘tyranny of distance’ impacted on my work in a real way. Yet even for those with greater access ‘few Galton books are available in modern reprints and his numerous [original] papers are lost in nineteenth-century periodicals’ (Keynes 1993: 3). However, his journal articles are readily available for analysis (as are those of most of the great Victorian scientists and essayists) in Australia’s major state libraries, and Karl Pearson’s (1914–30) great biography has never been bettered for its thorough documentation of his teacher’s life and work. Such, that most Galton scholars would still look to it for inspiration to some extent.

Yet secondary sources were viewed in another and positive way. The balanced use of primary and secondary sources is possible when the secondary sources themselves serve to illuminate a point being made: that all thinkers are influenced by the social and intellectual environments in which they work, and whose ‘history’ and values they have internalised. In 1958 the English historian Asa Briggs wrote a foreword to the Centenary edition to Samuel Smiles’s Victorian bestseller *Self-Help* (1859). Aside from the analysis of Smiles’s place in Victorian literature and of *Self-Help* as a work of literature, Lord Briggs, is able to ask ‘what is the place of self-help in the welfare state, where social contingencies are met by government action? In a 1996 reprint of Smiles’s *Self-Help*, Lord Harris of High Cross, in an essay titled ‘A New Consensus for the Millennium’ laments the very existence of the welfare state; reading into Smiles’s work an anodyne for the debilitating affects of ‘state benevolence’ under both Conservative and New Labour governments. He suggests that rather than dismissing the Victorian author’s gospel of self-sufficiency as quaint ‘Victorian values’ Smiles’s recipe of self-improvement through self-help provides the answer to the major social problems besetting the end of the twentieth century. The use of secondary sources can tell us where—as far as ideas are concerned—we have come from in relation to certain themes and where we currently stand intellectually in relation to those themes. After all the discussion of intellectual change itself is about a centuries long process of the sifting of concepts and beliefs through many minds in a dynamic relationship with time, place and scholastic fashion.
Most texts regarded as indispensable to scholarship in the field of the history of ideas and in the areas specific to the themes of this thesis, are Anglo-American in their focus. This I regarded as a challenge, and it largely determined the choice of an English, French and Australian focus to the themes discussed. I found it sometimes difficult to reconcile the dominance of the Anglo-American interpretation in virtually all matters relating to the development of society through the nineteenth and twentieth century, with my desire to somehow include some analysis which was Australia-centred. Consequently a background influence for me was the tension of acknowledging that scholarship at the centre and the efforts by those seeking to make a contribution from the periphery was an effort to justify Lovejoy’s (1948: 3) statement that ‘ideas are commodities which enter into interstate commerce’.

The problems which I encountered in doing this thesis mirror many of the problems encountered by others in doing certain kinds of research at the periphery whatever the discipline concerned. Not to be at the centre can be a real limitation; a limitation which is more than geographic. It is an emotional one also—the sense of being cut off from the mainstream.

Finally, I was encouraged in approaching my topic by an awareness of the seeming diminution of interest in the importance of the ‘themes and variations’ of European ideas as a worthwhile subject for research in Australian higher education; and as a still relevant field for understanding our cultural beginnings and our ongoing progress. I perceive that by taking an interdisciplinary approach to research in the social sciences and humanities our enthusiasm for intellectual history can be reinvigorated and maintained. In the immediate future the search for an appropriate ‘method’ seems the most urgent requisite for this type of research. It will perhaps be one which takes a ‘pluralistic’ approach as to methodology and one which broadens rather than narrows the definition of thesis. For while wisdom decrees that a successful thesis will be ‘narrow and deep’ a willingness to explore beyond defined boundaries—once again recognising the wisdom of Lovejoy (1940: 4) when he wrote that ‘ideas are the most migratory things in the world’—is to recognise the nature of the attempt which I made here.

At a technical level, the consideration of what constitutes the material appropriate for exploration and extrapolation within and across the boundaries of disciplines I considered as important as the writing of the thesis itself. For this reason, as well as using and perusing conventional ‘texts’, that is the written word, I also took a keen interest in visual material which might be useful in illustrating the biographical, technical and scientific as well as the literary and artistic dimensions of the thesis. In
line with Lovejoy’s (1936; 1940; 1948) admonition that researchers cooperate with others in the promotion of intellectual history I regarded the involvement of those with particular expertise as vital in undertaking this thesis.

I acknowledge the staff of the Borchardt Library at La Trobe University; in particular Margot Hyslop for her help in obtaining detailed information about publishing histories of Australian books and serials. Richard Overell, Rare Books Librarian at Monash University for allowing me access to fragile book materials and his willingness to facilitate the production of reproductions from these sources. To this end Adrian Dyer of the Physics Department Photographic Service in the Faculty of Science at Monash University gave valuable advice. The staff of the Mitchell and Dixson Libraries at the State Library of New South Wales were helpful in locating material related to Dr Alan Carroll. I also thank Simon Conti of The Mary Evans Picture Library, London, for ‘chasing up’ a desired image of the Marquis de Condorcet and making this available to me.

I thank my supervisor’s Dr Bob Bessant and Dr Lorraine Ling of the Institute for Education for their guidance during the research and writing of this thesis.
Statement of Authorship

Except where reference is made in the text of the thesis, this thesis contains no material published elsewhere or extracted in whole or in part from a thesis by which I have qualified for or been awarded another degree or diploma.

No other person’s work has been used without due acknowledgment in the main text of the thesis.

This thesis has not been submitted for the award of any degree or diploma in any other tertiary institution.
Chapter 1

Introduction

Ideas are commodities which enter into interstate commerce.

—A. O. LOVEJOY, Essays in the History of Ideas (1948) p. 3.

Focus of Study

The aim of this study is to explore the way in which ideas about human physical and mental development have been variously manipulated in the social sciences from the late eighteenth to the beginning of the twentieth century in the ‘new’ disciplines of anthropology, sociology and psychology. It does this using a methodological approach drawn from the field of the history of ideas as conceptualised by the German born American philosopher Arthur O[ncken] Lovejoy (1873–1962). A. O. Lovejoy created a way of breaking down and examining ‘large cultural terms’ (such as Romanticism, primitivism, evolutionism and naturalism) into smaller units, or ‘unit-ideas’, in order to reveal their heterogeneous and unique structure (see Chapter 2 for a more detailed discussion of the concept of the unit-idea and its perceived methodological problems). He stressed the importance of utilizing a multidisciplinary and cooperative approach when examining ideas since, he argued, it was not possible for one person to be properly familiar with all aspects and knowledge within all the disciplinary fields which might contribute to a full understanding of the history of an idea. At the same time an important part of Lovejoy’s approach to historiography related to the primacy which he gave to consideration of the ‘beliefs, prejudices, pieties, tastes and aspirations’ which were, he believed, characteristic of a community as a whole during any epoch (Lovejoy 1936: 19). It was, he argued, as important to appreciate the contribution made by the diverse numbers of ordinary people to the development of ideas as it was to appreciate and consider (as was more often the case, particularly in scholarship) the achievements and imput of ‘great’ thinkers.

Lovejoy’s approach to method made use of the proximity, if not the overlapping, of philosophy with literature and history as a way of examining major themes in Western philosophy and intellectual history. In this thesis this overlapping is constructed—if this can be visualized—by overlapping the areas of anthropology, sociology and psychology and then overlaying these over not on philosophy, literature and history.
‘Ideas’ are understood as building dynamically through time and space (archaeologically and geographically) and encompassing a past, a present and a potential or future existence. As an example, the reference to the notion of perfection, progress and evolution in this thesis makes use of a speculative and implicit idea concerning the desirability of fostering the physical and mental ‘improvement’ of the human race. Particularly as this was expressed in the writing of the eighteenth century French philosopher Nicholas de Condorcet and the research of nineteenth century English scientist Francis Galton, a man who was explicitly devoted to the possibility of eugenic reform. To examine the transition of this link across time and space is the method adopted in this interpretation of Lovejoy’s approach to the history of ideas, which is here regarded as having much in common with more formal phenomenological methods of analysis.

The phenomenological approach to understanding the process of doing the history of ideas requires examining what Husserl ([1913] 1958: 197) calls the ‘not yet determinate… effecting the transition [of ideas] through a process of “unfolding”, [and] of separating [them] out into a series of presentations’. These presentations or occurrences may fade from view and at some point come once more into foreground perception. Taking a phenomenological approach with respect to the history of ideas may assist in dealing with the perceived problems of Lovejoy’s notion of single ideas being the building blocks which go to make up larger concepts. Louis Mink (1968: 14–15) argued that Lovejoy’s approach was governed by a ‘doctrine of forces’ of which there were essentially two elements. One element was the force produced by the ‘logical “pressure” of ideas’ themselves, and the second force was seen to be engendered by ‘individual propensities of feeling, taste and temperament’. In this thesis the action of these forces have been recognized by the forces which go to make up the tripartite complex of perfection, progress and evolution and the manner in which the idea-complex has been manipulated by various anthropologists, sociologists psychologists and writers between the late eighteenth century and the beginning of the twentieth century. Ideas are perceived as developing as accretions or ‘congeries’ of ideas’ (Mink 1968; Wilson 1994: 171); like single organisms make up the mass of a coral reef, which is an irregular structure where their development is mediated by the action of tides. Smaller dynamic units [or unit-ideas] are part of a continually evolving complex of ideas, a point if view which favours the position taken by those who ‘emphasize the dynamic forces in Lovejoy’s methodology’, what-ever the perceived inadequacy this methodology produces for historians (Wilson 1994: 171).
The History of Ideas

The history of ideas has its roots in the soil of European philosophy and history. It may be described as a coming together of the history of philosophy and the history of historical writing or historiography. It has also been described as cultural history and intellectual history. During the nineteenth century there was a move toward ‘eclecticism’ when the traditional emphasis on philosophy was extended and expanded by the French philosopher Victor Cousin (1792–1867) and the German historian Jacob Burckhardt (1818–97) to include more diverse influences and fields within its ambit. Cousin’s contribution was to initiate a consideration of the role played by ‘external’ forces such as society itself in the formation of ideas. Burckhardt looked to the role played by other spheres of human endeavour and concern—particularly those embracing the psychological and spiritual dimension, such as religion, mythology and the [fine] arts, in the development and understanding of ideas. In the twentieth century the focus enlarged again. Throughout the century intellectual historians attempted to define the parameters of the ‘discipline’ of historiography and to determine what kind of phenomena was worthy of investigation and by what methods. In France during the 1930s an approach with an affinity to aspects of Lovejoy’s method, the ‘history of mentalities’ [mentalités collectives] drew attention to the role played by the ‘peasant’ in the development of intellectual history. In providing a definition Vovelle (1990: 12) described the history of mentalities as ‘the study of the mediations and of the dialectical relationship between the objective conditions of human life and the ways in which people narrate it, and even live it’. While the study of the influence of major social and political movements in Western philosophy and culture remained, increasingly during the twentieth century, there developed an interest on the part of historians of ideas to understand role played by ideology and language in the formation of concepts which underpin the thought of a people and an epoch (Berlin 1961; Kelley 1990a; Berlin [1979] 1997; Boas 1969; Oakeshott 1983; Preston 1983; 2000; Koselleck 1985; Vovelle 1990).

In the present study the focus is on the four threads running through the practice of the history of ideas. The social origins of ideas is discussed. Ideas are regarded as the product of human interaction; the product of communication in relationships between individuals, groups and nations. The varieties of sources for ideas other than those originating in philosophy and history is explored, since ideas are formed as the result of the contribution made by various ‘ways-of-seeing’, including religion, mythology and the arts. The role played by semantics in the conceptualization and interpretation of ideas is explored, since human communication through the manipulation of language is the source of understanding and governs the ‘rules of action’ (Foucault 1972: 13). Psychologically ideas are regarded as being accepted and modified through the
continual manipulation of language, a process which ultimately determines the psychological power which particular concepts obtain and hold for persons and communities in any epoch. Finally, the role played by the non-professional in the dissemination of ideas is examined, since they are understood as willing and active participants in the promotion of knowledge and the final arbiter of which ideas survive and are accepted for good or ill by a minority and by the majority of a community.

A. O. Lovejoy and the Study of the History of Ideas

In *The Archaeology of Knowledge* (1972: 136–7) the French philosopher Michel Foucault described the discipline called the ‘history of ideas’ ‘as an uncertain object, with badly drawn frontiers, methods drawn from here and there, and an approach lacking in rigour and stability’. At the same time, according to Foucault (1972), this inexact discipline possessed two important roles. On the one hand it recounted ‘the by-ways and margins of history… all those shady philosophies that haunt literature, art, the sciences, law, ethics and everyday life’ (Foucault 1972: 136). On the other hand it set out to ‘cross boundaries of existing disciplines, to deal with them from outside, and to re-interpret them’ in order to show how knowledge is built up and formalized, and how ‘themes fall apart, pursue their isolated lives, fall into disuse, or are recomposed in a new way’ and ‘how scientific knowledge is diffused, gives rise to philosophical concepts and shows how problems, notions, themes may emigrate from the philosophical field where they were formulated to scientific or political discourses’ (Foucault 1972: 137).

This version is not dissimilar to the description of the history of ideas offered by Lovejoy.1

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In Lovejoy’s (1936: 20) view:

It is part of the eventual task of the history of ideas to apply its own distinctive analytic intellectual method in an attempt to understand how new beliefs and intellectual fashions are introduced and diffused, to help elucidate the psychological character of the processes by which change in the vogue and influence of ideas have come about; to make clear, if possible, how conceptions dominant, or extensively prevalent, in one generation lose their hold upon men’s minds and give place to others.

In a tribute to Lovejoy six months after his death at the age of ninety in 1962, one colleague (Randall Jr. 1963) likened Lovejoy’s approach to ‘intellectual palaeontology’ nicely anticipating Foucault by ten years.

Lovejoy was Professor of Philosophy at Johns Hopkins University in Baltimore from 1910 till 1938. A ‘reluctant teacher’ who refused to teach undergraduates, his seminars for his few graduate students were organized round his favourite themes in philosophy and his pursuit of the study of the ‘history of ideas’ (Wilson 1980: 187). His reluctance to cultivate a student following or build up a large academic department, is explained suggests his biographer Daniel Wilson by his ‘commitment to interdisciplinary work’ and his belief ‘that only by ignoring the traditional boundaries that had fragmented scholarship could one pursue a consideration in all its ramifications or explore the implications of a philosophical position’ (1980: 188). To this end Lovejoy’s conviction led him in 1923 to inaugurate The History of Ideas Club. Its purpose was to bring together members of different departments of the university ‘for occasional presentation and discussion of papers and informal communication in the field of the history of ideas’ in the hope that this activity might ‘promote a useful cross-fertilization of the work of the several historical and humanistic departments’ (Lovejoy 1948: 6; Wilson 1980: 188).

In 1936 Lovejoy published in one volume a series of lectures which had originally been delivered in the academic year 1932–33 as part of the William James Lectures on Philosophy and Psychology, a lecture program which had been inaugurated at Harvard University in 1929. The monograph born of this lecture series became The Great Chain of Being: A Study of the History of an Idea (1936) with its well-known introductory essay ‘The study of the history of ideas.’ The Great Chain of Being, which served as a methodological model for the practice of the history of ideas, was in fact the culmination of work already begun as early as 1902 (Wilson 1980: 33, 139–56; Wilson 1982: 3n. 5). Lovejoy described what he meant by the history of ideas as follows:

---

By the history of ideas I mean something at once more specific and less restricted than the history of philosophy… differentiated primarily by the character of the units with which it concerns itself. Though it deals in great part with the same material as the other branches of the history of thought and depends greatly upon their prior labors, it divides that material in a special way, brings the parts of it into new groupings and relations, views it from the standpoint of a distinctive purpose…

In dealing the history of philosophical doctrines, for example, it cuts into the hard-and-fast individual systems and, for its own purposes, breaks them up into what may be called their unit ideas. (Lovejoy 1936: 3)

It was here that Lovejoy introduced and utilized the (subsequently much criticized) concept of the ‘unit-idea’. Unit ideas were basic structures [somewhat like Lego blocks] from which ‘compound’ or larger and more complex structures—which he referred to as ‘idea-complexes’—were built. It was the task of the historian of ideas to examine the ways writers and philosophers used those basic ideas to build more complex ideas. Since writers and philosophers whoever they might be and in whatever discipline they might be working ‘were not always sensitive to the logical relations between ideas nor the ambiguities which crept into their thinking’ it was the task of the historian of ideas to ‘clarify the confusions that had appeared in the meaning and use of ideas’ over time and within the work of any particular thinker (Wilson 1982: xxiv).

It was according to Lovejoy (1936: 5) ‘the persistent dynamic factors, the ideas that produce effects in the history of thought’ in which the historian of ideas was ‘especially interested’; and that while ‘a formulated doctrine is sometimes a relatively inert thing’ he was of the opinion that:

The conclusion reached by the process of thought is also not infrequently the conclusion of the process of thought. The more significant factor in the matter may be, not the dogma which certain persons proclaim—be that single or manifold in its meaning—but the motives or reasons which have led them to it. And motives and reasons partly identical may contribute to the production of very diverse conclusions, and the same substantive conclusions may, at different periods or in different minds, be generated by entirely distinct logical or other motives. (Lovejoy 1936: 5 [emphasis added])

In The Great Chain of Being Lovejoy set out to trace the history of three unit ideas in this way. In the first place he examined the Platonic and neo-platonic concept of the ‘principle of plenitude’ which he described as ‘the thesis that the universe is a plenum formarum in which the range of conceivable diversity of kinds of living things is exhaustively exemplified’ one in which ‘no genuine potentiality of being can remain unfulfilled’ (Lovejoy 1936: 58). It was ‘From the Platonic principle of plenitude [that] the principle of continuity could be directly deduced’ he continued:

It is in Aristotle that we find emerging another conception—that of continuity—which was destined to fuse with the Platonistic doctrine of the necessary “fullness” of the world, and to be regarded as logically implied in it… It was he who chiefly suggested the idea of arranging (at least) all animals in a single graded scala naturae according to their degree of “perfection”. (Lovejoy 1936: 58 [emphasis in original])
Aristotle went a step further, devising an arrangement of all things in a single order of excellence based on the degree to which each organism had attained or was capable of obtaining its ‘potentiality’ and:

this vague notion of an ontological scale was to be combined with the more intelligible conceptions of zoological and psychological hierarchies which Aristotle had suggested; and in this way what I shall call the principle of unilinear gradation was added to the assumptions of the fullness and the qualitative continuity of the series of forms of natural existence.

The result was the conception of the plan and structure of the world which, through the Middle Ages and down to the late eighteenth century, many philosophers, most men of science, and, indeed, most educated men, were to accept without question—the conception of the universe as a “Great Chain of Being,” composed of an immense, or—by the strict but seldom rigorously applied logic of the principle of continuity—of an infinite, number of links ranging in hierarchical order from the meagerest of existents, which barely escape non-existence, through “every possible” grade up to the ens perfectissimun—or, in a somewhat more orthodox version, to the highest possible kind of creature, between which and the Absolute Being the disparity was assumed to be infinite—every one of them differing from that immediately above and immediately below it by the “least possible” degree of difference. (Lovejoy 1936: 59 [emphasis in original])

What Lovejoy was interested in was the various permutations of the concept of plenitude as demonstrated in Western thought—with all its inconsistencies, ‘confusions’ ambiguities and ‘logical weaknesses’—from the time of Plato to Leibniz and to the Romantic period in the early nineteenth century. A similar attempt is made in this thesis to examine the various permutations of the complex of ideas which go to make up the notion of human improvement or progress, with its associated idea of evolutionary development and the possibility of perfection, as it developed in a period when this ‘idea-complex’ was seriously analysed within the nascent disciplines of anthropology, sociology and psychology. It was a time when the boundaries of these disciplines were more fluid than they would be in the twentieth century, a time when each discipline was struggling to stake out its own sphere of interest. Francis Galton for example published most of his papers on the psychological aspects of human inheritance up to the mid-1890s (when the Psychological Review appears) in The Journal of the Royal Anthropological Institute. In the eleventh edition (1910–11) of Encyclopaedia Britannica he is described as an anthropologist. This ‘fuzziness’ of disciplinary boundaries in effect produced the methodological problem which confounds this study. It is the problem which Lovejoy (1936; 1940; 1948) identified as inhibiting the progress of intellectual history. It is probably the reason why there is no Lovejovian analysis akin to a Marxist or psychoanalytic method of analysis in intellectual history; although a very small number of admitted admirers of Lovejoy have made attempts to apply his methodology in their respective areas of expertise (see Morton 1984). Carrying out an interdisciplinary study and following ideas through all their permutations in history à la Lovejoy may lead to ‘conceptual confusion’ (Dunn
1968; see Chapter 2, p. 36). Doing the history of ideas—as Lovejoy conceptualized it—may be methodologically ‘unsafe’, yet from a phenomenological and psychological point of view it is perhaps much closer to the process as it happens. Conceptual confusion(s) is what history and the history of ideas is about (see Chapter 2 for a discussion of the problems of method in the history of ideas).

In tracing the variety and teasing out the meaning of the ‘complex of ideas’ which made up the notion of the great chain of being Lovejoy was also demonstrating the methodology for the history of ideas as he conceptualized it. ‘The Great Chain of Being’ as Wilson ([1990] 1994: 126) points out was ‘not merely the history of an idea’ it was ‘also the history of Lovejoy’s ideas’. Indeed he intimated as much when in teasing out Aristotle’s principle of continuity he remarked:

Nature refuses to conform to our craving for clear lines of demarcation; she loves twilight zones, where forms abided which, if they are to be classified at all, must be assigned to two classes at once. (Lovejoy 1936: 56)

It has been argued that Lovejoy failed to demonstrate his methodology effectively (Wilson 1982; Mandelbaum 1983; Wilson 1994). However in the introduction to The Great Chain of Being Lovejoy argued a case, which he would argue again and again (1940; 1948), for an eclectic, interdisciplinary and cooperative approach among those scholars interested in the study of intellectual history. It was an argument which he and his co-editors restated in the sub-title and ‘mission-statement’ of the Journal of the History of Ideas which he was instrumental in founding: ‘[W]hen one tries to relate… the biography of even one idea, a heavy demand is made on the catholicity of the intellectual resources of one’s auditors’ (Lovejoy 1936: 22). The success—if success of a methodology can be counted as the survival of the history of intellectual history in the form of an enterprise [the journal] which promotes its continuance—then his mission in a broad sense may be counted as having achieved its aim.

Preston King (1983) identifies The Great Chain of Being as one of four works which established the identity of the history of ideas as a distinct field of scholarship; in its American form at least. He singles out the opening chapter ‘Introduction: The study of the history of ideas’; ‘The historiography of ideas’ first published 1938 and subsequently incorporated as an introductory chapter in 1948 in Essays in the History of Ideas. King (1983) then identifies the less well known essay ‘Present standpoints and past history’ which was published in the Journal of Philosophy in 1936 as contributing to the field; and finally ‘Reflections on the history of ideas’ which constituted the first and defining essay that launched the Journal of the History of Ideas in 1940. In these and other writings Lovejoy set down what Donald R. Kelley (1990: 11) had termed his ‘extraordinarily eclectic agenda’ for the enterprise of
interdisciplinary study as he envisioned it. The purpose of the journal as Lovejoy (1940: 7) described it was:

> to contribute... towards a more effective liaison among those whose studies have to do with the diverse but interrelated parts of history [and] to serve—among other things—as a useful medium for publication of researches which traverse the customary boundary-lines, or are likely to be of interest and value to students in other fields than those in which they primarily lie. [emphasis in original]

He went on to adumbrate those topics where the ‘editors believe[d] further investigation to be potentially profitable’:

1. The influence of classical and modern thought, and of European traditions and writings on American literature, arts, philosophy, and social movements.

2. The influence of philosophical ideas in literature, the arts, religion, and social thought, including the impact of pervasive general conceptions upon standards of taste and morality and educational theories and methods.

3. The influence of scientific discoveries and theories in the same provinces of thought, and in philosophy; the cultural effects of the applications of science.

4. The history of the development and the effects of individual pervasive and widely ramifying ideas or doctrines, such as evolution, progress, primitivism, diverse theories of human motivation and appraisals of human nature, mechanistic and organismic conceptions of nature and society, metaphysical and historical determinism and indeterminism, individualism and collectivism, nationalism and racialism.

In *Essays*, Lovejoy (1948: 1) set down under ‘twelve labels’ what he identified as the main areas of specialism as they existed at the time:

1. The history of philosophy
2. The history of science
3. Folklore and some parts of ethnology
4. Some parts of the history of language, especially semantics
5. The history of religious beliefs and theological doctrines
6. Literary history
7. What is unhappily called “comparative literature”
8. The history of art other than literature, and of changes of taste in these arts
9. Economic history and the history of economic theory
10. The history of education
11. Political and social history, and
12. The historical part of sociology... sometimes designated as *Wissenssoziologie*.

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1 First published as ‘The historiography of ideas’. In *Proceedings of the American Philosophical Society*, Vol. 78, No. 4, March, 1938. It was reprinted as Essay 1. in the 1948 volume which contained sixteen essays exploring ‘normative ideas associated with the word “nature”’ as well as essays on Romanticism.
Lovejoy (1936: 16) complained that in the past these subjects had been studied in ‘relative isolation’ and what was required was an approach which dissolved the boundaries—putting ‘gates through fences’ as he called it—between these disciplines and which revealed the process through which ideas change. Laudan (1977: 173) paraphrased Lovejoy’s criticism of this tendency:

One of the most restrictive features of intellectual history is its discipline-bound manner of presentation. We have historians of philosophy, historians of science, historians of theology, each generally assuming that the ideas with which they are concerned have no crucial cross-disciplinary dependencies... [and] in practice, if not in theory, this manifold division of labor between the various disciplines has exerted a deleterious effect on the writing of intellectual history, because the assumption of (relative) disciplinary autonomy has tended to blind many historians of ideas to the single most striking fact about the history of thought, its integrative character. [emphasis in original]

In ‘Reflections on the history of ideas’ Lovejoy (1948) observed that because of the discursive nature of human thinking, that thinking was likely to have a good deal to do with behaviour, intuitions, material achievements in technology and the arts, and with human aspiration. ‘Every branch of historical inquiry’ he wrote, ‘consequently, may be said to include within its scope some portion of the history of ideas’ (Lovejoy 1948: 3). Unfortunately the process of increasing specialization which had initially been a necessary part of the development of various disciplines in the eighteenth and nineteenth century, in the twentieth century (at least at the time when Lovejoy was writing) had become subject to unnecessarily ‘departmentalisation’, a situation which he regarded as an ‘impediment’ to the progress of knowledge (Lovejoy 1948).

Mandelbaum (1983: 198–200) considered that the interdisciplinary aspect of Lovejoy’s agenda ‘raised few, if any, special methodological issues’ and was less problematic than the notion of unit-ideas as the basic building blocks of intellectual concepts. An argument largely supported, or at least finding some resonance, in the critical studies of other scholars (Spitzer [1944] 1990; 1994; Mandelbaum [1965] 1983; Wilson [1987] 1990; 1994; Bevir 1999). However, while the problematic methodology of Lovejoy’s particular approach to the study of intellectual history might be allowed to call the whole enterprise into question, the heuristic possibilities are attractive and it is this which stimulates the current process and the current attempt to apply a version of Lovejoy’s method of historiography to a particular topic.

**Phenomena in the History of Ideas**

To show in what way the method of history of ideas has been implemented in this thesis it is useful to understand how Lovejoy understood the phenomena he was investigating. In the Preface to *Essays in the History of Ideas* Lovejoy (1948) argued that there were ‘some general or frequently recurrent phenomena in the history of
ideas’ and he elaborated these under three heading which he subsequently illustrated in the series of expository essays named above.

The three phenomena were:

1. The presence and influence of the same presuppositions or other operative “ideas” in very diverse provinces of thought and in different periods.

2. The rôle of semantic transitions and confusions, or shifts and of ambiguities in meanings of terms, in the history of thought and of taste.

3. The internal tensions or waverings in the mind of almost every individual writer—sometimes discernible even in a single page—arising from conflicting ideas or incongruous propensities of feeling or taste, to which, so to say, he is susceptible.

In the first case what he meant was that the ‘underlying idea-complex’ associated with a particular word may be found in connection with a seemingly opposite philosophical position. Lovejoy for example cites with respect to understanding the history of the concept ‘nature’ the association of ‘irregularity and ‘wildness’ with ‘beauty’ during the early Romantic period (A novel like Emily Brontë’s Wuthering Heights, 1847, may be cited).

With respect to the second of the above Lovejoy (1948: xii-xiii), in elaborating, made the suggestion that people in general respond to and are motivated ‘chiefly by catchwords… and [that] nearly all of the great catchwords have been equivocal—or rather, multivocal’. A word or phrase may have many more than one meaning; the researcher must be sensitive and ‘alert to observe the ways the multivocality of the word sometimes facilitates or promotes… changes—some of them revolutionary changes—in the reigning fashions in ideas’ (Lovejoy 1948). The same terms, words, phrases used by the researcher in 2000 when discussing what s/he understands as meaning and meaningful in an earlier age must be carefully examined in light of their recognized meaning(s) in that earlier age. This is not always an easy task. For example, while already beginning to lose their more precise associations in the nineteenth century the words ‘lady’ and ‘gentleman’ had connotations which are largely now forgotten; yet the evolving of these titles are in themselves telling of the changing structure of society at the time (Pool 1993). The influence of the ‘diverse spaces and spheres’ of ‘popular culture’ can not be underestimated when considering

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5 A contemporary example may be found by noting the word ‘gay’ in the title of the 1934 film The Gay Divorcee (RKO), starring Fred Astaire and Ginger Rogers. The word is now taken as ‘the colloquial equivalent of homosexual without further distinction’ seemingly taking precedence over the traditional definition of ‘cheerful’ However, the precise mechanism of the shift in meaning is not clear.
the fashions and concerns, social and intellectual, of both our own and earlier periods in history (Giroux 1994).

**In Support of Interdisciplinary Studies**

While this thesis is not an analysis of Lovejoy’s career it acknowledges his method, his appeal to a multidisciplinary approach, and his initiation of a way of breaking down ‘large cultural terms’ into smaller units in order to reveal their complex and novel structure. In particular it acknowledges, his willingness to uncover ‘the manifestations of specific unit-ideas in the collective thought of large groups of persons, not merely in the doctrines or opinions of a small number of profound thinkers’, since he considered it important to ‘isolate… the beliefs, prejudices, pieties, tastes, aspirations… which become part of the stock of many minds’ (Lovejoy 1936: 19). In making the focus in this thesis concepts such as perfection, progress and evolution—in relation to human biological and social development—the complex structure both of these ideas as ideas in themselves and importantly of these ideas as a spur to action can be demonstrated. While recognising that the ‘territory’ explored has been traversed by others in various ways (a point Lovejoy also made with respect to his own efforts in *The Great Chain of Being*), in doing so this thesis attempts to make use to some extent of Lovejoy’s own method to make a study of the ambiguities inherent in history itself and in its method of analysis. This thesis then re-iterates the interdisciplinary focus which Lovejoy advocated as a necessary part of the study of the history of ideas, and further sets out to demonstrate the integrative character of aspects of the ‘twelve labels’ formally identified by Lovejoy in 1936.

Of particular concern is the reciprocal relationships between major and minor scientific and literary figures in the development of nineteenth century social sciences. Mazzeo (1972: 389) recognises the fact that ‘Lovejoy was less restricted than the conventional historian of thought because he realized that an important part of the life of an idea is lived in the works of minor thinkers and of imaginative writers’; the way a poet or other creative writer might employ an idea or a concept ‘could reveal implications of it not found in the very system from which it was derived. Thus Lovejoy drew heavily on literature in his interpretation of the philosophical thought of the past’ (Mazzeo 1972: 389). In this thesis for example Erasmus Darwin’s *The Botanic Garden* (1789) is cited as an instance of such imaginative poetic writing; poetic writing which may be appreciated for itself while also giving an insight into the [scientific] development of evolutionary theory leading up to the writing of Charles Darwin’s *On the Origin of Species* (1859). The same is true (although there is very little written about it by any of those who have discussed Lovejoy’s work, or indeed generally in the ‘history of ideas’) of visual artists. Artists like William Frith whose
panoramic and highly detailed depictions of Victorian life may be read as giving an ‘anthropological’ insight into and understanding of English urban and middle-class values and customs in the mid-nineteenth century. The utilization of this method—and these and other similar examples—in this thesis is in keeping with Lovejoy’s (1940: 7) stated desire that those interested in the history of ideas analyse the ‘influence of philosophical ideas [as expressed] in literature, the arts, religion, and social thought, including the impact of pervasive general conceptions upon standards of taste and morality’.

Lovejoy was of the opinion that ‘external’ factors, even in the study of major literary works, could be very useful to the student of intellectual history. Lovejoy (1940: 9) was writing at a time in the 1930s when there was a fashion among literary and art critics to challenge the notion that ‘a work of “art” is such by virtue of its relation either to an artist who produces it or to a potential reader, hearer or beholder’; and that a work of art could be ‘differentiated from other visible or audible artificial objects by its capacity to produce in the perceiver a distinctive something called an “aesthetic enjoyment,” or “aesthetic experience” which… is not simply identical with cognitive experience’. There were those including the Christian apologist and medievalist C. S. Lewis who ‘maintained that a work of art… must contain its aesthetic value, that is, the sources of the aesthetic experience it evokes, in itself, and not in anything extraneous to itself’ (Lovejoy 1940: 9n [emphasis added]). In the case of writers or poets there could be ‘no call to “character” or “expressions of personality” to “experiences, education, associations, “background,”’ sources, philosophical opinions, contemporary reputation, later influence, and the like’ (1940: 10). Lovejoy (1940: 11) held out against the notion that ‘what would commonly be recognised as a work of art, must consist wholly in its own literal and explicit context’. While it remained a moot point, he argued, whether the personal life of Shakespeare or the private life of Lewis Carroll was going to add or detract from an appreciation of Hamlet or Alice in Wonderland, there were cases where such knowledge did add to an understanding of the work being investigated:

Consider Coleridge’s “Dejection, an Ode”: our present knowledge (which we owe to his biographers and the collectors of his letters) of the experiences out of which it arose, and of the fact that it marked the end of his great creative period as a poet, makes the poem far more moving than it can have been to the generality of the readers of the Morning Post in 1802. Such knowledge adds what may be called a new dimension to a work of art. (Lovejoy 1940: 12-13)

Character and context are essential for an appreciation of Oscar Wilde’s The Ballad of Reading Goal (1898) and De Profundis (1905); ‘background’ and ‘experience’ are necessary to fully comprehend The Diary of Anne Frank (1947; trans 1952); some familiarity with the facts of Stalin’s USSR are useful to fully appreciate Ivan
Solzhenitsyn’s *One Day in the Life of Ivan Denisovich* (1962); the events leading up to [and after] an independent India are worth knowing in order to understand Salman Rushdie’s *Midnight’s Children* (1993); these are just a few obvious examples. The portrayal of women in film over the course of the twentieth century is very instructive. While ‘texts’ abound, much can be read, much can be understood from a concurrent consideration of the image.

Important for the history of ideas is the implication that literature itself is a ‘criticism of life’ and that secondary literature can also add to ‘our present knowledge’ [While it must also be added that Lovejoy (1940: 6) cautioned on an over-reliance on ‘secondary and tertiary’ sources]. Written works were for Lovejoy not only a ‘source of delight’ but an ‘indispensable body of documents’ for assessing what people ‘had done with ideas and what diverse ideas had done for and to’ people (Lovejoy 1940: 16). While acknowledging the importance of the place of written works in historiography, in the context of the later part of the twentieth century, it would be wrong to consider only written works as useful material for this task. Indeed Margaret M. Starkey (1952: 265), in an article which is supportive of Lovejoy’s approach as a means for understanding the intellectual context in which ideas develop, suggests that the ‘history of ideas scholar resort[s] to all available sources’ eschewing even ‘writers traditionally classified as literature’ and seeking out ‘second, third and fourth-rate authors for a purpose—the collection of information’. The scholar of ideas should in the first place ‘collect dispassionately’ and secondarily should aim for ‘judging and appreciating in the light of knowledge gained’ (Starkey 1952: 266). To collect widely allows the scholar to assess the works of individual ‘authors’ against the prevailing [of their own time] standards and trends. Ideally the historian of ideas would consider sources other than texts conventionally defined as written and printed documents. These sources may include visual ones such as paintings, advertising posters, illustrations in books general and specialist, journals of all types, newspapers, memorabilia and ephemera, newsreel footage, feature films and documentaries. The latter is particularly important for any ‘history’ of the twentieth century. The ‘affective’ or emotional connotations engendered by particular ideas prevalent at a certain time in history may be better understood by examining the extent to which creative writers and journalists, for example early [popular] scientific writers like Bernard de Fontenelle, polemists like William Rathbone Greg, and novelists like Benjamin Disraeli and William Winwood Reade, manipulated a particular theory or idea. Hitler’s film-maker Leni Riefenstahl’s *Triumph of the Will*, 1934 is a striking twentieth century example of the uncompromising manipulation of technology and the image in the service of ideology.
Lovejoy himself presented a strong argument for a close analysis of the major ‘literature’ which informed his interest in the classical period between the Renaissance and the late eighteenth century. It was reasonable that he do so, since it was his intent to ‘cut hard and fast’ into the complex of [presumably obscuring] ideas, in order to uncover the essence of meaning at the centre of philosophical systems. However in recent times there has been a tendency for historians of ideas to focus only on that part of the history of ideas which attempts a close analysis of texts for their own sake; an approach which principally takes its cue from the sphere of literary criticism, particularly in what Kelley ([1990] 1994: 322) describes as its ‘modern and radicalized form… which [in affect] sets concrete discourse above transcendent “ideas”’. This ‘language-centred intellectual history’ he argues has tended to push the history of ideas along:

channels rather narrower and less venturesome than those mapped out by Lovejoy… and conspicuously, it has become increasingly estranged from those three original fields of cultivation—history, literature, and philosophy—which Lovejoy called the “common seed-plot” of the history of ideas (Kelley [1990] 1994: 320).

The ‘history of ideas’ has of late, it is argued, become caught up in the language of “post-modernism,” “post-structuralism,” “post-historicism,” “new-criticism,” and a few more modernisms’ (Kelley [1990] 1994: 312). As far as Lovejoy’s original categories are concerned in the ‘history of science’ alone new approaches like those of Thomas Kuhn have expanded the possible ways of understanding intellectual history particularly as it concerns the sciences (Kelley 1990). The ‘horizons of natural science have expanded to include such issues as ecology, gender difference, insanity, abortion, animal experimentation and other issues which hardly concerned Lovejoy and his colleagues’ (Kelley 1990: 14). To this can be added the controversy about the ethics of cloning, animal and human; all the discussion on the uses and abuses of DNA screening; on genetic engineering; embryo harvesting for therapeutic purposes and the like. All of which as far as this thesis is concerned should be considered—and held in mind—in the light of the dilemmas posed for both Darwin and Galton and other Victorian intellectuals as they made contributions to the understanding of human development in the nineteenth century. The history of ideas in the social sciences as broached in this thesis is not understood—by virtue of its status as an academic thesis—as existing in isolation from other areas of human experience and enterprise. Nor is it understood as being in some way especially detached from new moral and philosophical dilemmas concerning human existence. The student of the history of ideas needs to look back, look forward and look around; and of course to look across all the disciplinary boundaries which present themselves initially as barriers to knowledge. Lovejoy himself tried to come to grips with the latest ideas, like Freudian psychology, ‘and we should do no less’:
We cannot return to the age of conceptual innocence before the cultural, social, and political expressions of “effective” and destructive forces of the last half century, of the world of thought before the linguistic turning, the information explosion, and the experiences projected by means and media which hardly figured in Lovejoy’s prescriptions for the history of ideas. We cannot behave as if Husserl, Heidegger, Foucault, Derrida, and their interlocutors had never written. (Kelley 1990: 23)

In effect the field of the history of ideas has both narrowed and broadened. Methodologically the field has been buffeted by all the changing ‘fashions’ of academic practice, which just goes to prove Lovejoy’s point about what it is the historian of ideas is searching for and looking to uncover. Epistemologically the field of endeavour has widened to make room for the all the questions which have arisen out of the process of history and of the human role as part of that process. To examine the complex of ideas which makes up the idea of perfection, progress and evolution is to do so with the knowledge that this complex of ideas is in process. Thinking, or writing about these ideas is not new. Many books [and many theses] have been written, and will continue to be written, on some aspect of the philosophical, scientific and social questions arising from the quest to understand the development of the human organism and the nature and development of human societies. The pathfinding for this task was carried out to some extent as a result of the development during the nineteenth century of the new disciplines of anthropology, sociology and psychology which in their nascent state all concerned themselves with resolving issues related to understanding the nature of human biological and social development and therefore also human history.

‘The Thinking Animal Engaged’: The Educational Function of the History of Ideas

It was Lovejoy’s own effort, in response to the then dominant constraints of philosophy, and of the conditions of academic life in the early years of the twentieth century to reconcile history, literature and philosophy, which led him to propose a methodology for untangling the process of change in the development of particular ideas or concepts through many centuries; utilizing a wide-ranging scholarship, encompassing an ‘encyclopedic agenda’ which Kelley (1990) identifies as a strength of the ‘American school’ and which differentiates Lovejoy’s approach to intellectual history from that of European scholars in nominally the same field. Characteristic of this approach was breadth or ‘sweep’ a commitment ‘to a suitably broad vision as well as a commitment to precise scholarship’ (Kelley [1990] 1994: 318). Lovejoy (1940: 8) of course strongly believed that the study of the history of ideas was important for its own sake: ‘It has its own reason for being.’
The historian of ideas naturally wanted to know why certain thoughts had ‘been widely held’ among many ‘on matters of common concernment’ and also wanted ‘to determine how these thoughts have arisen, combined, interacted with, or counteracted, one another, and how they have severally been related to the imagination and emotions and behavior of those who held them’, and he was of the opinion that:

while the fixed or changing environmental conditions of human life, individual and collective, and conjunctions of circumstances which arise from no [one’s] thinking or premeditation, are factors in the historic process never to be disregarded, the actor in the piece, its hero—some would say these days, its villain—is still homo sapiens; and the general task of intellectual historiography is to exhibit, so far as may be, the thinking animal engaged… (Lovejoy 1940: 8)

Lovejoy’s contribution was much influenced by the rise of fascism in Europe during the 1930s, and what he saw as the dangers posed by German aggression, hence his comment. He goes on to defend the study of intellectual historiography on the grounds that ‘the justification of any study of history is simply the human interestingness both of episodes and of the moving drama of life’ (Lovejoy 1940: 8 [emphasis in original]). Moreover, undertaking such historical inquiry might be defended on the basis that it is enlightening, and rebukes those ‘contemporary historians [who] appear to ‘reject—that the knowledge which it yields is “instructive,” that it provides conclusions—conclusions which do not relate merely to the occurrence and successions of past and particular events’ (Lovejoy 1940: 8). ‘[N]o part of historiography’ he argues,

seems to offer a better promise of this sort of serviceableness than a duly analytical and critical inquiry into the nature, genesis, development, diffusion, interplay and effects of the ideas which generations… have cherished, fought over, and apparently been moved by (Lovejoy 1940: 8 [emphasis added]).

He then calls forth those sentiments which goes beyond a mere concern with dates and places: ‘To study history is always to seek in some degree to get beyond the limitations and preoccupations of the present; it demands for its success an effort of self-transcendence’ (Lovejoy 1939: 482). Our ancestors, he suggests, had their own—not necessarily instrumental—reasons for doing and thinking the way they did. ‘In these aspects of history lie not the least of its values; for it is they, especially, which make of it a mind-enlarging, liberalizing, sympathy-widening discipline, an enrichment of present experience’ (Lovejoy 1939: 483). Lovejoy (1940) appeals to those ideals of the Enlightenment which moved all those committed to the pursuit of knowledge. Within the context of a world in which those ideals are under threat the call to self-knowledge though ‘sufficiently old and respectable’ is what is needed most:
[I]ntellectual history manifestly constitutes an indispensable, and the most considerable, part of such knowledge, in so far as any study of the past may contribute to it. At no moment, indeed, in the life of the race has the pertinency of the Delphian imperative been more tragically apparent; for it must now be plain to everyone that the problem for human nature is the gravest and most fundamental of our problems, that the question which more than any others demands answer is the question, “What’s the matter with man?” (Lovejoy 1940: 9–10)

**Philosophical-Historical Inquiry**

Lovejoy (1948: 3) made a statement that ‘ideas are commodities that enter into interstate commerce’ which may be taken to mean that ideas are ‘exchanged’ through human interaction across time and space. This is a theme encountered in the discussion of the ‘logistics’ of the diffusion of ideas in Chapter 6 of this thesis. However ideas as commodities are more successfully exchanged when a value is attached to the intellectual concept being exchanged. Without the idiosyncratic and emotional attachment of certain individuals to certain ideas within particular social settings ideas would not travel as they do. The idea that some races are more ‘civilized’ than others and that their degree of development can be measured both physically and mentally was a view widely held and a major part of intellectual discourse in the nineteenth century among scientists and writers. The nineteenth century in particular is viewed as psychologically, philosophically, as well as pragmatically prepared for and dedicated to the principle of intellectual commodity exchange.

Lovejoy (1936; 1940; 1948) while arguing for a process which emphasized a search for the elements which go to make up the whole, pleaded for the possibility of ‘cooperation’ between disciplines. His own method prescribed that any unit-idea which the historian isolates should be traced ‘through all the provinces of history in which it figures in any important degree, whether those provinces are called philosophy, science, literature, art, religion, or politics’, recommending that the historian of ideas going outside his or her own specialism, an activity which he identified as ‘philosophical-historical inquiry’ (Lovejoy 1936: 20). An understandably mammoth task requiring extensive knowledge on the part of the researcher. This is a fact recognized by Lovejoy’s student and colleague George Boas (1969: 22) who also acknowledged the difficulties inherent in the task:

Hence it is clear that before one can write the history of an idea one must disentangle it from all the ambiguities that it has acquired in the course of time. One must expect to find it appearing in contexts that vary from age to age. One must not be puzzled to find it used for praise or blame. To do all this requires very wide, indeed indiscriminate reading, tolerance of inconsistency… and a willingness to accept wobbling from fact to value and value to fact.
Perfection, Progress and Evolution: A Study in the History of Ideas

This thesis undertakes to use Lovejoy’s (1936: 20) method of philosophical-historical inquiry and follows a narrative literary structure. It is not an attempt to replicate exactly Lovejoy’s method, which save for its interdisciplinary focus is in all events a contested one (an approach whose difficulties are more fully examined in Chapter 2). In as much as he proposed a particular method this method stressed pluralism. Nor is it an attempt to replicate Lovejoy’s achievement in *The Great Chain of Being*. It does however approach some ideas related to those discussed in that and his other writings particularly as it relates to the ‘doing’ of the history of ideas. In this thesis the ideas of perfection, progress and evolution are understood to be philosophically and psychologically interrelated; each word with its individual linguistic nuance linked with and contributing to the notion of improvement in Western culture. In this context the suggested method of analysis approximates the one utilized by Lovejoy:

> We shall discriminate, not… a single and simple idea, but three ideas [plenitude, continuity and unilinear gradation] which have… been so closely and constantly associated that they have often operated as a unit, and have, when thus taken together, produced a conception—one of the major conceptions of Occidental thought—which came to be expressed by a single term: ‘the Great Chain of Being’; and we shall observe the workings of these both separately and in conjunction. (Lovejoy 1936: 20–21)

In this thesis an attempt is made to discriminate not a single and simple idea, but three ideas [perfection, progress and evolution] which have been so closely and constantly associated that they have often operated as a unit, and have, when thus taken together, produced a conception, one of the major conceptions of European thought: Progress. The focus is not, as it is in the case of *The Great Chain of Being*, on these ideas as expressed in the thinking and writings of philosophers. Rather it concentrates on the thinking and writing of those early contributors to the nascent disciplines of anthropology, sociology and psychology. It takes up where *The Great Chain of Being* ends: in the early nineteenth century when in the philosophy of Hegel and Friedrich Schelling a concept of the world bound by a chain of being is superseded by one in favour of ‘emergence’ and of ‘becoming’ (Lovejoy 1936: 11; 326 Wilson 1982: xxiii; Duffin 1980)

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6 There is a telling photograph in Daniel Wilson’s (1982: 83) biography titled ‘Lovejoy confronting the pluralistic universe’. Lovejoy regarded himself primarily a philosopher and the rationale for his fostering an interdisciplinary approach lay in his rejection of both the idealism current in the philosophy of G. H. Howison and Josiah Royce and in the ‘irrationality’ of the philosophy of William James. Those aspects of James’ outlook which did advance notions of pluralism and emergence, married to a firmly held belief in reason motivated Lovejoy’s approach to philosophy (Wilson 1982: xix).
In Chapter 3 the etymological foundation of the key words perfection and evolution is examined. Virginia Muller’s (1985) textual examination of the etymological root of the word perfect is discussed within the context of a larger exploration of the Marquis de Condorcet’s ([1795] 1955) ‘paragon of all presentations on progress’ Esquisse d’un tableau historique des progrès de l’esprit humain (Sketch for a historical picture of the progress of the human mind) (Liedman 1994: 692). Muller (1985: 2) for example draws attention to ‘the multiple connotations’ of the word, and stresses ‘the notion of the Greek words teleos, perfect and telos, end’. She cites the Latin facere, to make, and per, meaning thoroughly. Something is complete when it is made thoroughly. A thing which is incomplete and will not fulfil its purpose is not perfect. This has [by implication] far-reaching consequences for both individuals and groups. The Greeks already associated perfection with improvement in technology as their ‘yardstick for progress’, and it may be suggested that the mathematician Condorcet’s philosophic but also strong psychological attachment to the notion of perfectibility is present in this sense. Condorcet may be representative of what J. G. A. Pocock (1973) calls ‘Classical man’. Classical man ‘tends to assume that he has an identity and to inquire what can be done with it; [a man whose] political action is civic, an operation outwards from his presumed identity toward the identities of other beings’ (Pocock 1973: 275). In the midst of the chaos of the French Revolution this civic man wrote his great utopian work, and befitting a man of the Enlightenment he argues in his thesis that in the future, science broadly speaking, will ameliorate all the evils befalling human-kind; and will even be harnessed to improve the human organism itself, a task that would be taken quite seriously by nineteenth century proponents of eugenics like Sir Francis Galton.

In Chapter 8, the same word in its French form of perfectiblé appears ambiguously in the writing of Jean Jacques Rousseau. Here it is Lovejoy (1948: 14–37), among others, who demonstrates that the concept perfectibility while seeming to appear in Rousseau’s Discours sur l’origine de l’égualité (Discourse on the origin of inequality, 1755) as the idea that ‘natural man, born essentially good… and following… the gentle impulse of instinct… has not yet degenerated into reason’ is actually ironic, because Rousseau in Lovejoy’s opinion did not believe this and is really arguing the opposite view. Human society did not progress until it ‘emerged from a state of nature’. The vehicle conducive to this emergence is the arts and sciences: the civilizing forces of European culture as understood in the eighteenth century. Appearing at the time of the voyages of Cook, and Bougainville who set foot on Tahiti to mingle with ‘les naturals’, and Denis Diderot’s Supplément de Bougainville the idea of the ‘noble savage’ was too attractive to undermine with notions of the possible relationship between humans and anthropoid apes—a suggestion hidden in Rousseau’s text. What
Lovejoy was drawing attention to is the inherent danger in undertaking a superficial reading of Rousseau or any other eighteenth century writers on the topic of evolution. A danger which could easily be generalised to any other area of study which involved an ‘historical’ component—a condition which applies also to the writings of the nineteenth century personalities in this thesis—where in a sense the researcher has to believe (from the vantage of another era) that his or her interpretations are accurate in the sense that they capture not only the thinking behind the words but also the lived experience which made the words happen. This it is offered is what the history of ideas is about. It is its most difficult task. It is this that the historian of ideas is attempting to uncover.

In contrast to ‘Classical man’ as epitomised by Condorcet in the previous chapter, Chapter 4 is devoted to one who could be described as ‘Romantic man’: Thomas Carlyle. Pocock (1973: 275–6) describes such a man as one who tended to ‘assume that his identity requires to be asserted or discovered, and that hostile agencies are operating to thrust an identity not his own upon him’. The political action of such a personality ‘is revolutionary’ encouraging ‘a transformation of the self [and] a reconstruction of the conditions under which selves are to be created, and an engagement in the presumed self-creations of others’ (Pocock 1973: 276). Carlyle is highly sceptical about change and progress in his time. He writes within the historical memory of the philosophical and social upheaval created by the French Revolution: ‘What is revolution, but the speeding up of change’ (Carlyle [1837] 1934: 167). He writes with great emotion of the Age of Machinery, of the ‘New Era’ as today we might write of the information age: he writes of the mechanization of modern society—conducted now ‘all by rule and calculated contrivance’—and the resultant commodification of human life, the loss of values, particularly ethical and religious values consequent of harnessing human life to economic output (Carlyle [1829] 1969: 34). A theme which resonates in the late twentieth century. In numerous essays and longer works, like ‘Signs of the times’ (1829) ‘Characteristics’ (1831) and Sartor Resartus (The tailor re-tailored, 1833–34) Carlyle confronts modernity and a vitalist-mechanist dichotomy which sees him rejecting ‘those who develop a science of society on the analogies of a science of nature and see history as confirming progress, civilisation, and evolution’ (Hogan 1995: 19). Rather he seeks to unite the transcendent and mystical aspects of German naturphilosophie most closely connected with Goethe, in which science is still capable of being united with the arts; in which it is still possible for science to be ‘unitive, imaginative, deductive, rather than analytical, empirical and inductive’ (Hogan 1995: 52). Science for Carlyle’s spokesman Herr Teufelsdröch in Sartor, is a means to ‘destroy Wonder, and in its stead substitute Mensuration and Numeration’ which he laments (Carlyle [1833–34] 1885: 47).
However at a personal level Carlyle associated with many of those scientists and philosophers of the Victorian era most closely connected with radical change.

In particular, Carlyle’s contemporary Francis Galton the subject of Chapter 5 contrasts the doubt inherent in the ‘oeuvre’ of Carlyle. He contrasts doubt with that faith in science which seems most characteristic of the Victorian Age. Galton as a member of the Darwin/Galton family was fully aware of the importance of the spiritual and physical connectedness which genealogy bestows. He fully accepts the past while using it as a springboard for the future. He fully embraces the methods of science particularly psychology to harness nature in service of human knowledge and perfection. If Condorcet only speculated in a high-minded way about the possibility of—to use the phrase bestowed by a highly sceptical Auguste Comte ([1830–42] 1853: 58–9)—‘an indefinite perfectibility’—Galton (1908: 288) took up the challenge of translating words into means, claiming a ‘hereditary bent of mind’, characteristic he believed of those familiarly related to Erasmus and Charles Darwin. *Origin of Species* only created a crisis for him in as far as it gave him permission finally to take on his life’s work. Making use of mensuration and numeration through the science of statistics which he had a large hand in developing in its modern form, the ‘possible improvement of the human breed’ became something of a mission. Galton embodies some of the most creative aspects of Victorian science pure and applied. Highly productive and humorous, adventurous and inventive, his enormous output of books including *Hereditary Genius* (1869) and journal articles including ‘Statistical inquires into the efficacy of prayer’ (1872) evolved from his near obsession with human heredity and development, and is characteristic of the confident spirit of both the man and his times. Galton expands notions of progress, perfection and change as these ideas become connected to the ‘science of society’ and expand the ‘science of man’.

Lovejoy’s (1936: 20) own discussion of the problem of ‘ideational change’ in historiography and the ‘elucidation of the psychological character [of the processes] by which change in the vogue and influence of ideas [have] come about’ is central to understanding the way ideas are appropriated by individuals and groups. Chapter 6 examines the supposed popularity during the early and mid-Victorian period in England of the belief in laissez-faire, the idea that one did not interfere with the conduct of business or intervene by means of state support in the conduct of human affairs. This idea held sway during a period of technological invention and industrial expansion. Individuals active in intellectual life, in philosophy, in the arts, and in the natural and social sciences supposedly appropriated the language of laissez-faire and industrial capitalism. This was eventually epitomised by the wide use of the sentiments expressed by the ‘catch-cry’ the ‘survival of the fittest’ a sociological term conceived
by Herbert Spencer and grafted on to the biological and evolutionary theory of Charles Darwin. The associated ideas behind this phrase found their way into all manner of contemporary literature including Walter Bagehot’s *Physics and Politics or Thoughts on the Application of the Principles of “Natural Selection” to Political Theory* (1871), demonstrating both Foucault’s and Lovejoy’s notion of the ‘migration’ of ideas from one sphere to another; in this case from the biological field to that of political discourse. Yet while the notion of laissez-faire, free-trade, open competition between individuals, and its scientific companion the ‘survival of the fittest’ might seem dominant themes of the period, there was another current of thought which challenged this assumption, and which was perhaps like the obverse of a coin in the hand, not visible yet steadily exerting its influence by its potential visibility should the coin be tossed. As early as the 1790s there was begun a great movement to eradicate the worst excesses of the factory system. Romantic poets and painters like William Blake, and from the 1830s writers like Thomas Carlyle in his essays, questioned the rise of mechanistic and ‘scientific’ approaches to the understanding of human existence. Thus providing an obverse view through their painting or writing of the most generally accepted image of the age in which they lived.

The sentiments of this movement remained and finds an echo in the socialism of the late nineteenth century; yet somewhat changed to accommodate the new faith in science: therefore (what to later generations may seem dubious) the proposition of eugenic intervention as a legitimate means to mitigate perceived social evil is discussed, particularly to show how variously the idea was understood in theory and as a potential method capable of being transferred into action.

Lovejoy (1936: 6–7) argued that ‘large movements or tendencies’ which are ‘conventionally labelled *isms*, are not as a rule the ultimate object of interest of the historian of ideas, they are merely the initial materials’ which the historian of ideas attempts to ‘prize open’ and subject to ‘systematic conceptual investigation’. Lovejoy (1936: 7) also asked ‘of what sort, then, are the elements, the primary and persistent or recurrent dynamic units of the history of thought of which s/he [the historian of ideas] is in quest?’

Herbert Spencer’s effort to break down into component parts the very building blocks of social progress in his sociology is very much an exploration of such a large issue—biological evolutionism—and in his case it may be regarded as an attempt to re-

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7 See Raymond G. Cowherd 1956. *The Humanitarians and the Ten Hour Movement in England* (Boston: Harvard University Press). This is a concise discussion of the writings of John Fielden, Richard Oastler and Michael Sadler the ‘Evangelical humanitarians’ who along with Anthony Ashley Cooper, 7th Earl of Shaftsbury (1801–85) and others fought to reform working conditions, in English factories, particularly for children; culminating in the Factory Act of 1847, the ‘ten hours bill’.
formulate, to transform one language into another: from natural science to social science. In this thesis the phrase ‘transformative power’ has also been applied to nineteenth century railway technology to describe the spatial and temporal change and greatly extended lines of communication wrought in its wake. Spencer’s use of a biological metaphor is similarly regarded as an example of this transformative process taking place at an intellectual, even emotional level in ‘the thought of an individual’.

Lovejoy (1948) argued that there exists a tendency on the part of the researcher to be insufficiently alert to ambiguity and inconsistency within the body of writing of one particular author. The desire for unity deters researchers from accepting inconsistency:

Many expositions of an author’s views and his reasoning seem... not merely oversimplified but over-unified. It appears often to be assumed that his thinking... on a particular subject or question, is all-of-a-piece; or if the expositor himself observes some inner discrepancies, some cross-currents in his author’s mental processes, he tends to minimize them or to ignore them altogether, selecting... only what he considers (sometimes quite erroneously) the most “important,” or the most “permanently valuable,” or the “most characteristic,” idea, or consistent scheme of ideas, of the author. (Lovejoy 1948: xiv)

While Lovejoy (1948) discusses the ‘inner tensions—fluctuations or hesitancies’ and the ‘unconscious embracing of both sides of an antithesis’ in Rousseau’s Discourses, Carlyle the ‘orphan of Romanticism’ (Herman 1997: 156) is cited as one in whose work this struggle is evident. Carlyle seems both enraptured and repulsed by progress in its nineteenth century guise. Charles Darwin is generally excused from involvement in the growth of the eugenics movement. He was sceptical of Galton’s early efforts in this direction. Yet his own ambiguous writings reveal an acute awareness of the possibility of race-improvement, and toward the end of his career he is communicating his support to his cousin. Such is the ‘tension and wavering’ which go to make the flow of philosophical-historical change as Lovejoy sees it. In attempting to connect the past with the present, it may be observed in current society that sacred words and phrases may be interpreted as ‘jargon’. For example, the word ‘efficiency’ so much a part of the ideological battle-cry in English-speaking countries during the 1890s, and ‘globalization’ in the 1990s are such ‘sacred’ words, which when examined reveal complex psychological as well as social, political and economic imperatives at work during these epochs. In Chapter 7 titled The Language of Survival an effort is made to show how various authors have attempted to understand and to some extent unravel the way in which the ‘[sacred] words and phrases’ Darwinism, Social-Darwinism, eugenics and ‘the survival of the fittest’ were formulated and subsequently applied. The word ‘evolution’, itself the theme of one of Lovejoy’s forays into the history of ideas, has been examined by P. J. Bowler (1975) in order to show how a concept and a word chosen to define it, has subtly changed its meaning over time. How the ‘shifts and ambiguities’ in the meaning of particular ideas and
conceptualizations of those ideas has undergone continuous modification. In Chapter 8, the birth of an ‘undifferentiated anthropology of the broadest scope’ (Stocking 1968: 17; Kilborne 1982) is explored. Already construed and called by its early adherents the ‘Science of man’, the rules governing the practice of this discipline (anthropology) was fostered by members of the avowedly interdisciplinary Société des observateurs de l’homme, (Society for the study of man) the worlds first anthropological society; but for only a few years between 1799 and 1804. After that time their efforts [as a group] were largely forgotten, yet their methods had already become part of scientific consciousness.

Followers of Jean Jacques Rousseau, contemporaries of Lamarck and Condorcet, they evoke the spirit of the age of Enlightenment as much as Carlyle, Galton, Spencer and Darwin evoke aspects of the spirit of Victorian England. Progressives all, utopians even [Condorcet was a member of the Société] the physicians among them, Cabanis for example, supported an ‘improved physical hygiene’ as a means to better the human condition; the anatomists like Georges Cuvier, philosophers like Joseph Degérando and anthropologists like François Péron, sought to implement a science of pure observation based on comparative anatomy in order to unravel the secrets of human physiological organization and the nature of civilization. In search for the actuality of a perfect society they were the first European scientists to deliberately turn to the Southern Hemisphere to test a hypothesis that ‘savage man was superior in physical perfection to the civilized European’(Péron cited in Stocking 1968: 32). Their method and tools were those that would become familiar to nineteenth century amateur and professional scientists: collecting, classifying, measuring, and, conspicuously an ‘analytical, empirical and inductive’ frame of reference.

Degérando was a member of the Société des observateurs de l’homme, and in this capacity he was able to put eclecticism in its more popular sense into practice. This society of medical practitioners, scientists, philosophers, explorers, nascent anthropologists, artists and writers must have provided the very prototype for the kind of interdisciplinary arrangement advocated by Lovejoy at Johns Hopkins. More than any other group this association of ‘amateurs’ and professionals fitted the profile of Lovejoy’s collaborative enterprise. The short-lived nature of the Société is also testimony to the countervailing pressure of disciplinary specialization already evident at the beginning of the nineteenth century.

Implicit and explicit in the interdisciplinary agenda which was advanced by members of the Société was a belief in progress and the advance of knowledge in the service of humanity. The context in which this took place was one which favoured the progress of intellectual enterprises in many forms: industrial, economic and political.
England, Europe and North America stand at the centre; and while it is acknowledged that most of the advances in this history emanated from a handful of such ‘centres’ it has also been acknowledged that the centres during the nineteenth century were shifting ones ‘increasingly responsive’ to activities in the ‘marginal zones’ (Richards 1993: 203). No writer making his/her observations from the Southern Hemisphere is able to ignore this fact, even in the late twentieth century. And it is largely an awareness of this phenomenon—that of the thinker working at the periphery—which motivated the decision to include in Chapter 9 of this thesis the work of a man, who it may be argued, followed an eclectic agenda in a pure, if not naive form, from the perceived disadvantage of living at the bottom of the world. Whether he was aware of it or not (and it is likely he wasn’t) it was one which had much in common with the more famous program pursued by members of the Société des observateurs de l’homme.

Alan Carroll, English immigrant to Australia, physician and amateur anthropologist and editor of a journal he called ‘The Science of Man’ is representative of a band of parochial enthusiasts in the late nineteenth century who lobbied on behalf of everything that was new in science, and carried the message of Progress to the farthest reaches of the globe. His eclectic sweep covered virtually every category which Lovejoy identified in his twelve labels of interdisciplinary interest. He was in fact something of an intellectual bowerbird, collecting ideas as they appeared from England, Europe and America, and assembling them on the platform which was his journal. Carroll saw the importance of anthropology and language studies; he supported the new experimental psychology of Wilhelm Wundt and the educational philosophy of James McKeen Cattel and Granville Stanley Hall and he sang the praises of educational reformers like Uno Cygnaeus and Friedrich Fröbel the father of the kindergarten movement. Though his efforts and spruiking went largely unnoticed, and he was ignored by the new class of professional thinkers, he was supported by a band of devoted followers who shared his aim to improve Australian minds and bodies. He embraced the sciences of measurement and testing wholeheartedly and did not shrink from the possibilities inherent in eugenic reform. More importantly he saw his accumulated scientific knowledge as a means to educate and promote the hygiene of the inhabitants of Sydney. Ideas for Carroll were not divorced from action in the real world.

The Role of Writers in this Thesis

In this thesis comparisons are made between individuals active in the provinces of philosophy, science and literature during the eighteenth, nineteenth and early twentieth centuries. Noting how they responded to available information, while at the same time
considering their responses to this information within the context of the social, scientific and technological changes taking place within the English and European milieux. Writers may be regarded as providing a conduit through which information about new ideas come into intellectual and psychological awareness. Journalists in newspapers and writers of journal articles on popular subjects such as phrenology in the nineteenth century conveyed information at least to those who could read, and through the normal process of verbal exchange to those who could not. In this way ideas came into a shared and public consciousness. This is part of the process of which Lovejoy speaks when he suggests that the historian of ideas might look to writings other than those of ‘great’ writers of a time. Writers of popular novels such as Benjamin Disraeli (before he became Prime Minister of Great Britain) in *Tancred* (1847) where ladies and gentlemen discuss the latest fad in evolutionary theory in a drawing room. Or Francis Galton, before he became a psychologist interested in heredity, in *Tropical South Africa* a popular and informative travel book; a book which gave the Victorian reader an anthropological insight into life on the ‘Dark Continent’. Only a small number of the reading public would read the scientific contributions on the nature of human heredity made to the journal *Nature* and to the *Westminster Review*. Many would read the following words uttered by Sherlock Holmes to Dr Watson in Sir Arthur Conan Doyle’s short story *The Adventure of the Empty House* ([1905] 1992: 106):

“There are some trees, Watson, which grow to a certain height, and then suddenly develop some unsightly eccentricity. You will see it often in humans. I have a theory that the individual represents in his development the whole procession of his ancestors, and that such a sudden turn to good or evil stands for some strong influence which came into the line of his pedigree. The person becomes, as it were, the epitome of the history of his own family.”

Doyle would have been familiar with the ideas current and expressed in the Journals. Jules Verne’s novels provided a similar scope for speculation on the possibility of radical forms of aquatic, terrestrial and stellar exploration.

Examples are given of writers who in various ways commented upon, aided and abetted the progress of ideas, particularly controversial ideas, and in doing so shepherded them along in history. From scientific entrepreneurs like Bernard le Bovier de Fontenelle who wrote a popular explanation of the Copernican universe in *Entretiens sur la pluralité des mondes* (Conversations on the plurality of worlds [1688] 1990) in which his characters speculate on the existence of life on other planets, much as they still do at the end of the twentieth century; through to the little-known French Astronomer-Royal Commerson who travelled with Bougainville and coined the term the ‘Island of Love’ to describe Tahiti; and Benjamin Disraeli who contributed a drawing-room discussion of human biological evolution in *Tancred* with
his character(s) arguing the possibility of humans developing to such an extent that they might become angels!; and by contrast, William Winwood Reade who made the religious and philosophic agony of the Victorians real in his novel *The Outcast* (1875) the story of a man who having read both Malthus and Darwin, commits suicide; and William Rathbone Greg, responding to the same crisis in the wake of the work of Darwin and Herbert Spencer, seeing hope for improvement of the human race in the planned elimination of the unfit in his striking essay ‘On the failure of natural selection in the case of man’ (1868). All these writers, some of whom are ‘minor’ figures in intellectual history never-the-less contributed to the spread of ideas beyond the confines of academia and the laboratory and must be considered as fostering the history of ideas.

Thus the focus of attention in this thesis is directed is both at the force of ideas as products of intellect and as products of human relationship. Emphasis is directed toward the phenomenon described as the ‘migration’ of ideas consequent on the kind of social arrangements demonstrated by those associated in the late eighteenth century with the *Société des observateurs de l’homme* and in the Victorian era within the wide circle of friends and colleagues which included Thomas Carlyle, Herbert Spencer and Francis Galton. To include both major figures like Bernard de Fontenelle, Nicolas de Condorcet, Thomas Malthus and Charles Dickens and less well-known figures like William Rathbone Greg, William Winwood Reade and Benjamin Disraeli; writers who facilitated the development of ideas connected with the overlapping themes of progress, perfectibility and the ‘possible improvement of the human breed’ (Galton 1901) supports the Lovejovian imperative to examine the ideas of those who played either proximate roles or acted as a chorus to important developments in social-scientific thinking; or those who observed in other ways the complex changes of modern society such as the ‘painter of modern life’ William Frith. The presence of secondary figures like Dr Alan Carroll is important for it allows some consideration of those who acted at the geographic margin of European and Anglo-American intellectual life.

This thesis supports the position that a dialectical relationship exists between the contribution made by individuals and the influence of the *Zeitgeist*. This position is based upon the approach to understanding the development of scientific ideas as suggested by E. G. Boring (1950) in relation to his study of the advancement of knowledge and particularly the development of psychology in the nineteenth century. Boring ([1950] 1963: 36; see Chapter 2) argued that while specific highly creative individuals do make important [scientific] discoveries ‘[y]ou cannot get away from the fact the times have something to do with discovery’. This is in line with the view
expressed by Lovejoy (1940: 4) that ideas are in ‘perpetual interplay’ across all spheres of human experience and enterprise:

Ideas are the most migratory of things in the world. A preconception, category, postulate, dialectical motive, pregnant metaphor or analogy, “sacred word.” mood of thought, or explicit doctrine, which makes its first appearance upon the scene in one of the conventionally distinguished provinces of history… may, and frequently does, cross over into a dozen others. To be acquainted only with its manifestations in one of these is, in many cases, to understand its nature and affinities, its inner logic and psychological operation, so inadequately that even that manifestation remains opaque and unintelligible. All historians—even, in their actual practice, those who in theory disclaim any such pretension—seek in some sense and to some degree to discern causal relations between events; but there is, unhappily, no law of nature which specifies that all, or even the most important, antecedents of a given historic effect, or all or the most important consequents of a given cause will lie within any one of the accepted subdivisions of history. [emphasis in original]

To examine the perpetual interplay of ideas—rather than ‘solving’ a problem or testing an hypothesis—allows for the kind of ‘multivocal’ approach Lovejoy wished to encourage with respect to understanding the nature of intellectual change. The vexed issue of what constitutes a suitable method of analysis remains in the background. The student of intellectual history recognizes the difficulty which besets its method yet carries on regardless; for the justification of pursuing this task as Lovejoy (1940: 8) said is ‘simply the human interestingness both of episodes and of the moving drama of life’; and this must be reward enough. Still it is to be remembered what in its purest form the method of the history of ideas might be:

The historian of ideas would like to know how a logical principle became a guide for behavior. It is possible—though improbable—that the Greeks had a more stable culture than we have. If so, consistency of character would have been more normal than it is in our more heterogeneous society. On the other hand, ideals are seldom reflections of what exists. (Boas 1969: 17)

On the most basic level, to follow how a logical principle becomes a guide for behaviour and to ‘pursue a consideration in all its ramifications or explore the implications of philosophical position’ is what a historian of ideas tries to demonstrate or discover (Wilson 1980: 188). To paraphrase Boas (1969), that this ideal seldom reflects what exists, has influenced the way the history of ideas has been done and the criticism to which the field [if in fact there is such a field] has been subject.

It is possible to argue that the history of ideas is being practiced as never before. Not, perhaps, as Lovejoy foresaw, but in a much ‘more heterogeneous’ way in all those fields which have developed since the 1960s; and particularly those areas devoted to all the ‘other issues which hardly concerned Lovejoy and his colleagues’ to which Kelley (1990: 14) draws attention. At the same time it is also possible to say that the history of ideas is still dominated by the history of philosophy, particularly as it concerns ‘the old cannon tied to British empiricism, German idealism, and American pragmatism’ while acknowledging that a little inroad has been made by more recent
‘dissenting’ contributors to ‘intellectual-historical discourse’ such Heidegger, Foucault and Derrida’ (Kelley 1990: 14). Indeed it has also been pointed out that The Journal of the History of Ideas adopted its subtitle: ‘an international journal devoted to intellectual history’ in recognition of the seeming obstacle created by the ‘hegemony of philosophy over the field of the history of ideas’ (1994: x).

Inroads still need to be made. Extending the range of discourse with which the history of ideas characteristically concerns itself to include the ‘influence of European traditions’ on the literature, arts, philosophy, and social movements of cultures and countries at the periphery would stimulate scholarship and encourage the writing of the history of ideas, whose rationale is after all to survey the ‘interestingness of human episodes’ and the ‘moving drama of life’. In this thesis a modest attempt has been made in this direction. The diverse creative contribution made to intellectual history by particular individuals at the centre of European scholarship has been cited, particularly as it concerns ideas of human physical and mental improvement. The philosopher and mathematician Nicolas Condorcet, the essayist and historian Thomas Carlyle, the polymath psychologist Francis Galton and the evolutionist philosopher and sociologist Herbert Spencer. In consideration of the social, collaborative and the explorative nature of the pursuit of knowledge, the anthropological inquiries of the Société des observateurs de l’homme has been cited as an exemplar of the interdisciplinary approach. The intellectual influence and contribution of less well-known individuals such as the writers William Rathbone Greg and William Winwood Reade and the French anthropologist François Péron has been cited to illustrate the manifestation of specific ideas in the thought of a wider range of persons ‘not merely in the doctrines or opinions of a small number of profound thinkers or eminent writers’. The work of the unknown English-born editor and amateur anthropologist Alan Carroll is included in this thesis as an example of one who through his own enthusiasm assisted the transfer of ideas from the Old World to the New. In this thesis the transfer of ideas from the intellectual centres of the Northern hemisphere to a community at the periphery or at the ‘margins of the industrial revolution’ (Richards 1993) in Sydney, Australia at the end of the nineteenth century. An argument can be made that—whether great or small, famous to the world at large, or only within their own parochial milieu—all contributed in some way to the totality of intellectual history and to the history of ideas itself. Like Lovejoy (1940: 8) himself, the writer of this thesis wants to know why certain thoughts about the possibility of human perfectibility had ‘been widely held’ and ‘how these thoughts have arisen, combined, interacted with, or counteracted, one another, and how they have severally been related to the imagination and emotions and behavior of those who held them’.
Chapter 2

Toward a Methodology in the History of Ideas

The more you press in toward the heart of a narrowly bound historical problem, the more likely you are to encounter in the problem itself a pressure which drives you outward beyond those bounds.


Historians of ideas cannot justify their theories by reference to the procedures they adopt for arriving at them.


Focus of Chapter

This thesis employs A. O. Lovejoy’s (1936; 1940; [1938] 1948) notion of the history of ideas as an interdisciplinary study as a starting point for method. As already discussed in the Introduction, Lovejoy (1936; 1940; [1938] 1948) the originator of the history of ideas as a field of endeavour, envisioned an interdisciplinary enterprise which sought to dissolve the boundaries between twelve fields of study including the history of philosophy, the history of science, folklore and ethnology, the history of language, the history of religious beliefs, literary history, comparative literature, the history of the arts, economic history, the history of education, political and social history and historical sociology. The focus of this chapter is a discussion of some of the perceived difficulties of employing the Lovejovian approach to research in the field of the history of ideas.

The Lovejovian Program

Mainly in the two books The Great Chain of Being and Essays in the History of Ideas (1948) and in numerous essays including ‘The Historiography of ideas’ (1938) Lovejoy set out his eclectic agenda for this enterprise.

Lovejoy stipulated three distinct parts of a working method in respect to the practice of the history of ideas. The first part was that the study called the history of ideas
[intellectual history] should be an inter-disciplinary one because as Lovejoy ([1940] 1994: 2) put it:

The processes of the human mind, in the individual or the group, which manifest themselves in history, do not run in enclosed channels corresponding to the officially established divisions of university faculties; even where these processes, or their modes of expression, or the objects to which they are applied, are logically discriminable into fairly distinct types, they are in perpetual interplay. And ideas are the most migratory things in the world.

The second part of this approach to method is that this new field of endeavour should be collaborative. Practitioners in various disciplines should engage in co-operative research because ‘no one can be a competent original investigator in many provinces even in history’ (Lovejoy [1938] 1948: 7). Since the purpose in this approach is not the study of a particular ‘school’ or system which are understood to be compounds or ‘idea-complexes’ it is the task of the collaborators to break down the compounds into much smaller entities called unit-ideas. Lovejoy ([1938] 1948: 9) described ‘unit ideas’ as:

types of categories, thoughts concerning particular aspects of common experience, implicit or explicit presuppositions, sacred formula and catchwords, specific philosophic theorems, or larger hypotheses, generalizations or methodological assumptions of various sciences—which have long life histories of their own… at work in the most various regions of the history of human thinking and feeling.

The Purpose

The task of the historian of intellectual history is:

to go behind the superficial appearance of singleness and identity, to crack the shell which holds the mass together, if we are to see the real units, the effective working ideas, which, in any given case, are present. These large movements and tendencies… are not as a rule the ultimate object of interest… they are merely the initial materials. (Lovejoy 1936: 6–7)

It was Lovejoy’s intention through this method to uncover the:

Total life history of individual ideas, in which the many parts that any one of them plays upon the historic scene, the different facets which it exhibits, its interplay, conflicts and alliances with other ideas, and the diverse human reactions to it, are traced out with adequate and critical documentation, with analytical discriminations, and finally with imagination. (Lovejoy [1938] 1948: 9)

Lovejoy (1936: 7) asked: ‘what then are the elements, the primary and persistent or recurrent dynamic units, of the history of thought’ for which the historian of ideas is in search? Importantly he then stated that he would ‘not attempt a formal definition’ but then went on to identify some [five] of the main types:
1. There are ‘implicit or incompletely explicit assumptions, or more or less unconscious mental habits, operating in the thought of an individual or a generation [emphasis in original].

2. These ‘endemic assumptions’ or ‘intellectual habits’ may be so vague that they may influence an individual’s thinking over a wide range of subjects. And, the researcher may find that ‘an individual’ or ‘whole generation may be dominated and determined by one or another turn of reasoning, trick of logic, methodological assumption, which if explicit would amount to a large and important and perhaps debatable proposition in logic or metaphysics’.

3. Thus a concomitant factor in the history of ideas and one to which the historian of ideas should be alert is the susceptibility to ‘diverse kinds of metaphysical pathos’, which is ‘exemplified in any description of the nature of things, any characterization of the world to which one belongs, in terms… which awaken through their associations, and through a sort of empathy they engender a congenial mood’. Lovejoy (1936: 11) calls it the ‘loveliness of the incomprehensible’, the idea that while the reader might not know precisely what the writer is discussing or trying to convey s/he is nevertheless sharing in ‘a sense of initiation into hidden mysteries’ (Lovejoy 1936: 11). It is an appeal to the ‘sublime’. This is a state where ideas as expressed by certain philosophers [appear to] give rise to an insight beyond the level of ordinary understanding. While Lovejoy (1936) is mainly writing of this phenomenon in relation to the emotional power of various philosophical concepts, George Boas (1969: 51) has stressed the general importance of the ‘affective coefficients’ as he called them:

   Very few perceptions are emotionally neutral, at least when new. They are in varying degrees either pleasant or unpleasant, though when we grow accustomed to them, they lose their affective colour and we accept them calmly as they come and go. Yet much of conversation deals with our “feelings” about things and sensations, as it does about people and what they do and say and whether one likes them or not. The metaphysical pathos, to use A. O. Lovejoy’s term, of an idea is its pleasantness or unpleasantness, and some ideas are so unattractive to some people that they seem inconceivable. Yet they are conceived… Thus when Freud’s theory of infant sexuality, Darwin’s theory of the descent of man, Copernicus’ theory of the sun’s immobility first struck the European mind, their implications were not judged on the basis of their probable truth or falsity but on the horror which they inspired.

Hence, the ‘affective’ or emotional connotations engendered by particular ideas prevalent at a certain time in history may be taken into account by examining the extent to which certain ‘authors’ (and these may include major writers and unknown pamphleteers) manipulated a particular idea.

4. This being the case the historian of ideas should if s/he ‘means to take cognisance of the genuinely operative factors in larger movements of thought, is an inquiry which may be called philosophical semantics—a study of the sacred words and
phrases of a period or movement, with a view of clearing up their ambiguities’ (1936: 14). Such words which we might term jargon or catchwords are subject to take on a life of their own ‘gaining currency or acceptance because one of its meanings, or of the thoughts which it suggests, is congenial to prevalent beliefs’ (1936: 14).

5. For this reason the historian of ideas is seeking to isolate one of these meanings as a ‘unit-idea’. When applied in this way a unit idea is a ‘single specific proposition or ‘principle’ expressly enunciated [(originally) by the most influential of early European philosophers] together with some further propositions which are… its corollaries’. A unit-idea such as ‘Christianity’ or ‘nature’ thus isolated is traced through all the ‘provinces of history in which it figures in any important degree, whether those provinces are called philosophy, science, literature, art, religion, or politics’ (Lovejoy 1936: 14–15).

Further, the breakdown of linguistic barriers to research is encouraged [which Lovejoy recognized as easier said than done] as is desirability to define ‘the manifestations of specific unit-ideas in collective thought of large groups of persons, not merely in the doctrines or opinions of a small number of profound thinkers or eminent writers’ (Lovejoy 1936: 19).

Finally, (Lovejoy 1936: 20) conceived of the history of ideas as an enterprise whose goal it was to ‘apply its own distinctive analytic method in the attempt to understand how new beliefs and intellectual fashions are introduced and diffused, to help elucidate the psychological character of the processes by which change in the vogue and influence of ideas have come about; to make clear how conceptions dominant, or extensively prevalent in one generation’ lose their attraction in another.

Lovejoy recognises the limitations of the method with respect to his own effort in the Great Chain of Being:

Precisely because it aims at interpretation and unification and seeks to correlate things which are not on the surface connected, it may easily degenerate into a species of merely imaginative historical generalization. (Lovejoy 1936: 21)

He added that since the researcher needs to ‘gather material from several fields of knowledge’ s/he is liable at least in some part of the synthesis to the ‘errors which lie in wait for the non-specialist’. In spite of this he regarded the enterprise as worth attempting (Lovejoy 1936: 21).
The ‘Unit-Idea’ and its Problems

Criticism has been levelled at the approach from the beginning by various authors from various disciplines and through changes in intellectual fashion (Kelley 1994: viii–xii). A colleague [of Lovejoy] declared that ‘there was the mark of the impossible about Lovejoy’s historical method’ (Feuer 1977: 361). Although Thomas Kuhn (1977: 149) credited Lovejoy’s (along with Ernst Cassirer) contribution ‘however profound its limitations’ as having a ‘great and fructifying influence on the subsequent treatment of ideas in history’.

One criticism is that there is no clear definition of unit-idea and how it is applied in practice, rendering the methodology so ambiguous as to be unworkable as a structure for research, being ‘neither a useful analytical tool nor an applicable heuristic devise’ (Wilson 1994: 158, 171; Oakley 1994: 210). The notion has also been criticised on the basis of its purported atomism (Bevir 1999).

In The Great Chain of Being Lovejoy (1936: 3) wrote that: ‘Its initial procedure may be said—though the parallel has its dangers—to be somewhat analogous to that of analytic chemistry’ [emphasis added]. Because when dealing with philosophical concepts the researcher ‘cuts into the hard–and–fast individual systems and… breaks them up into their component elements, into what may be called their unit-ideas’ (Lovejoy 1936: 3). Suggesting that he was quite aware that this was a potentially hazardous analogy to make.

However, by comparing his approach to analytical chemistry Lovejoy laid himself open to easy criticism. Bevir (1999: 201–2) accuses Lovejoy of essentialism, the practice of defining ‘traditions in terms of an unchanging core [the ‘unit-idea’] which appears in different outer garbs from time to time and even from person to person’ (Bevir 1999: 202):

The essentialist fallacy is exemplified by A. O. Lovejoy’s project of studying unit ideas as they change their outer form and enter into various shifting relationships with one another over time. Lovejoy himself, of course did not describe his unit ideas as traditions. He seems, rather, to have thought of unit ideas as appearing within traditions composed of clusters of such unit ideas. None the less, whether we choose to talk of unit ideas or clusters of unit ideas does not matter. What matters is that we should eschew essentialism: we should be wary of any talk of “primary and persistent” objects in the history of ideas.

Nevertheless, Laudan (1977: 180) argues that ‘until recently, [it was] the dominant mode of approach in the history of ideas’. Investigation of a unit idea or concept or tradition ‘involved tracing [back] one or more related ideas as they evolved through a long stretch of time’ (Laudan 1977). It is probably how most people [still] understand ‘history’. Vis-a-vis the history of ideas the Lovejovian method is, according to Laudan
(1977) a method with a number of deficiencies. As well as ignoring the way in which ideas were ‘interrelated and interconnected’, it tended to ignore ‘the shifting position of an idea within a broader conceptual network which is undergoing continuous modification’, and ‘at a deeper level’ it tended to ‘blind historians to the changes wrought upon a concept in the course of its evolution’ adding by way of illustration:

To suggest, as Lovejoy does, that both Plato and Leibniz subscribe to the idea of the great chain of being is to gloss over the fact that “the great chain of being” means something different to the two thinkers. (Laudan 1977: 182-3)

However this appears to be a partial reading of Lovejoy’s proposition. It is probably unlikely that a man who went to the trouble to extricate from history sixty-six different meanings for the word nature would have been unaware of the subtle differences or ‘ambiguities’ which that word implied within any given period. Lovejoy’s various cautions indicate that he was aware of the potential problems, including that the process might degenerate into a species of merely imaginative historical generalization. A theme echoed by John Dunn in 1968 in a paper devoted to status and character of the history of ideas:

The history of thought, as it is characteristically written is… a history of fictions—of rationalist constructs out of the thought process of individual’s, not of plausible abridgments out of these thought processes. It consists of… reconstructions, not of plausible accounts [of how people thought], but of more or less painful attempts to elaborate their ideas to a degree of formal intellectual articulation which there is no evidence that they ever attained.

…it is often extremely unclear whether the history of ideas is the history of anything which ever did actually exist in the past, whether it is not habitually conducted in a manner in which the relationship of evidence to conclusion is so tenuous that it provides not grounds at all for assent.

What is the subject matter of the history of ideas; past thinking, philosophy, ideas, ideology? And what indeed is its form…? (Dunn 1968: 87–90 [emphasis in original])

Pointedly, Dunn (1968: 97) warns of the possible descent into a state of ‘conceptual morass’.

Bevir (1999: 201) in an examination of synchronic explanations in the history of ideas is of the opinion that Lovejoy’s tendency to regard ideas themselves as having a tradition is acceptable as a starting point but not as a final destination.

**Between Text and Context**

Likewise, Quentin Skinner (1988: 35) is also broadly critical of the Lovejovian approach to the history of ideas. The notion he argues ‘that any fixed “idea” has persisted [over a long period of time] is spurious’:
The danger is that the doctrine to be investigated so readily becomes hypostatized into an entity... the story of the development of such a doctrine very readily takes on the kind of language appropriate to the description of a growing organism. The fact that ideas presuppose agents is... discounted, as the ideas get up and do battle on their own behalf. (Skinner 1988: 34–5)

Like Laudan (1977) he also critical of the belief in the existence of a ‘coherent’ body of work, an artistic or even scientific ‘oeuvre’ or set of beliefs held over time (Skinner 1988: 38–41). An observation disputed by Kathleen Duffin (1980) who points out that Lovejoy never advocated such a position. If anything he advocated a position which upheld discontinuity within continuity.

Skinner (1988) in a wide-ranging analysis of the field also attends to one of the central issues for methodology: the tension between textual and contextual approaches to analysis. Lovejoy (1944: 204–5) argued that his method was one which consisted primarily ‘in carefully scrutinizing the textual evidence to see whether or not an identical component recurs in two or more contexts’. To which Skinner (1988: 55) responds:

[I]f we wish to understand a given idea... we cannot simply concentrate, à la Lovejoy, on studying the forms of words involved... Rather we must study all the various situations, which may change in complex ways, in which the given form of words can logically be used—all the functions the words can serve, all the various things that can be done with them.

Linguistic contextualists like Skinner—taking their cue from [mainly French] structuralist linguistics—recommend that ‘historians should focus on languages because languages prescribe what an author can say’ and ‘to understand the ideas expressed by an individual, these must be studied in terms of the language conventions operating in the wider society (Bevir 1997: 168). This is as Kelley (1990b) points out, one of the ‘narrow channels’ into which the history of ideas has more recently been diverted. To focus so narrowly directs our attention away from the author’s (ongoing) beliefs and importantly ‘away from the beliefs or desires upon which people have decided to act’ (Bevir 1997: 173). Paradoxically this last statement must certainly be closer to Lovejoy’s own position when he suggested that while it was important that ‘a student of the history of ideas’ make a detailed and critical analysis of ‘what an author literally says in a given passage... and how he was thinking when he said it’ it was also important to consider the ‘distinctive springs of action in man and how they so operate’ (Lovejoy [1940] 1961: 70 [emphasis in original]).

In other words to understand motivation:

[That] there are two quite distinct kinds of ideas of future states–of–things which may be present for awareness... the idea of the end, or the state–of–things conceived as potentially resulting from the choice and the act, and the idea of the choice or the act itself, or of oneself conceived as choosing or acting in a certain manner. And...
the chooser’s idea of himself as possessing and manifesting in his contemplated act certain qualities or powers or characteristics which he can now at the moment of choice regard with pleasure (or at least without displeasure) can, and often does, have present value, i.e., is the determinant of desire. (Lovejoy ([1941] 1961: 79 [emphasis in original]))

Bevir (1999: 223) in a discussion of diachronic explanation in the history of ideas agrees that change occurs in decisions made by individuals, not in the inner logic of various traditions. On the other hand, one of the dangers of contextual study—currently in favour—as Skinner sees it is that:

despite the possibility… that a study of social context may help in the understanding of a text… the fundamental assumption of contextual methodology, that ideas of a given text should be understood in terms of its social context, can be shown to be mistaken, and to serve in consequence not as a guide to understanding, but as a source of further very prevalent confusions in the history of ideas. (Skinner 1988: 59 [emphasis in original])

A contextual methodology leads practitioners into having to decide whether it was ideas that changed society or society that changed ideas (Skinner 1988: 58). Skinner (1988: 64) proposes that the ‘appropriate methodology’ for the history of ideas is to:

delineate the whole range of communications which could have been performed on a given occasion by the utterance of the given utterance, and, next to trace the relations between the given utterance and this wider linguistic context as a means of decoding the actual intention of the given writer. Once the appropriate focus… is seen in this way to be essentially linguistic and the appropriate methodology is seen… to be concerned with the recovery of intentions, the study of all the facts about the social context of the given text can then take place as part of this linguistic enterprise. The problem about the way in which these facts are handled in the methodology of contextual study is that they get fitted into an inappropriate framework. The ‘context’ mistakenly gets treated as the determinant of what is said. It needs rather to be treated as an ultimate framework for helping to decide what conventionally recognizable meanings, in a society of that kind, it might in principle have been possible for someone to have intended to communicate. [emphasis in original]

To which Mark Bevir (1999: 88–9) has responded:

We should not mistake the craft-lore of a discipline for a part of its logic… Methodologists propose heuristic techniques rather than prescriptive rules… Although historians might grasp the intention of an author without paying any heed to the linguistic context, they also might not do so. The linguistic context might provide the crucial piece of evidence that leads a particular historian to grasp the meaning of an utterance… None the less there is nothing special about linguistic contexts in this respect. Prudent historians will immerse themselves in the ideas, habits, and social and economic structures of the periods they study so as to check their intuitions. We should not dismiss the search for evidence. We should reject only the idea that the search for evidence must take a particular form. Method can sustain helpful hints. It cannot sustain a logic of discovery. [emphasis added]

What is an Appropriate Method for the History of Ideas?

The history of ideas is located at a juncture of three disciplines: history, philosophy, and literature, but in its modern form it most clearly ‘appears as an offshoot of the history of philosophy’ (Kelley 1990: 4). Taking account of this ‘mixed heritage’
Kelley (1990) appeals to and cites ‘Nietzsche’s hermeneutical argument’ which proposes that the approach taken should recognize:

[That] there is no such thing as an event in itself. What happens is a group of phenomena selected and concentrated together by an interpreting being. Interpretation, not explanation. There is no such thing as a fact, everything is in flux, ungraspable, elusive; what is most enduring is our opinions. Introduction of meaning—in most cases a new interpretation over an old interpretation that has become incomprehensible, that is now only a sign. [Nietzsche cited in Kelley 1990: 20 [emphasis in original]

This is suggestive of Husserl’s ([1913] 1958: 197) statement:

*What is given to us at the moment has a determinable margin, not yet determinate,* and possessing its own way of effecting the transition through a process of “unfolding”, of separating out into a series of presentations at first; it may be passing once more into obscurity, then emerging once again in the presentational sphere, until the object referred to… passes into the brightly lit circle of perfect presentation. [emphasis in original]

Further, Husserl ([1913] 1958: 239–40) in his discussion of phenomenological time, or the ‘stream… of experience’, writes that if the self [Ego]:

reflects and perceptively understands, rests on some experience, there exists a priori possibility of redirecting the glance to other experiences… to new experiences within its fringe, and from the fixating of these to that of their experience fringes… When we speak of an experience-fringe, we have in mind that an experience that is deliberately looked at has its own fringe of experiences that are not deliberately viewed.

Husserl then elaborates on this and presents the notion (familiar from Gestalt psychology) of the interplay between figure and ground; between the sum and its parts. It is from this as yet unclear background that possibilities arise, ‘raising the unemphatic into relief, and making the obscure clear and even clearer’ (Husserl [1913] 1958: 240).

As Gadamer ([1960] 1989: 245) observed:

Husserl is obviously seeking to capture the transition of all limited intentionality of meaning within the fundamental continuity of the whole. A horizon is not a rigid frontier, but something that moves with one and invites one to advance further.

But does this knowledge make our search for a method any easier? We can take the position that a full understanding can only be achieved by acknowledging:

every encounter with tradition that takes place within historical consciousness involves the experience of the tension between the text and the present. The hermeneutic task consists in not covering up this tension by attempting a naive assimilation but consciously bringing it out. (Gadamer [1960] 1989: 306)

Adopting a hermeneutic perspective may lead us to decide that our ‘method’ should follow the tenets of qualitative research because there is an increasing interest in non-quantitative and alternative approaches to method in the social sciences especially among sociologists (Psathas 1977; Silverman 1997). However practitioners of
methods which [still] have as one their aims ‘The belief that a social science, which takes seriously the attempt to sort fact from fancy remains a valid enterprise’ (Silverman 1997: 1) may be rewarded by reflecting on Feyerabend’s (1975: 303) proposition:

[F]acts alone are not strong enough for making us accept, or reject, [scientific] theories, the range they leave to thought is too wide; logic and methodology eliminate too much, they are too narrow. In between these two extremes lies the ever-changing domain of human ideas and wishes. [emphasis in original]

A call to a logic and methodology that eliminate too much can not be answered by the kind of method appropriate for the history of ideas. Sociologists Baszanger and Dodier (1997: 9) uphold the primacy of empirical observation ‘as a way of distinguishing sociology from philosophy and the introspection [through language, phenomenology and hermeneutics] which takes place upstream of an empirical approach’ (Baszanger & Dodier 1997). The history of ideas is about the introspection which takes place upstream but not necessarily if at all of an empirical approach. The history of ideas is a speculative [we argue] enterprise not an empirical one. The method appropriate for the history of ideas will take account of the domain of human ideas and wishes which can be done by adopting a pluralistic method, one which fits the demands of a linguistic, phenomenological and hermeneutic understanding and one which resists the temptation to fall before the alter of ‘proof’.

**Folk Psychology**

Bevir (1997) emphasises the wisdom of using the tenets of what he calls folk psychology to understand the process of ‘reading’ the history of ideas. Bevir (1997: 178–9) conceptualizes folk psychology as:

A cluster of concepts that refer to human attitudes, perhaps attitudes to states of affairs, or perhaps attitudes to propositions; concepts such as “fear,” “belief,” “desire,” and “pleasure.”... Folk psychology allows us to conceive of people reaching a novel conclusion by exercising their reason or imagination. Even if people set out from various assumptions [they inherit during the process of socialization] they still can go on to exercise their reason or imagination to modify the assumption they thus inherit in a novel way.

**Synchronic and Diachronic Evaluation and Change**

He further argues for an approach to methodology which sees a marriage between a synchronic and a diachronic form of explanation; a union which creates the possibility of understanding historical phenomena from the perspective of ‘webs’ of belief: ‘An historical understanding can never be an objective in an of itself, but only by virtue of its place in the broader web’ (Bevir 1999: 311). ‘Historians of ideas,’ Bevir (1999: 178) suggests,
want to make intelligible the way someone else has made the world intelligible; they
want to understand the way someone else has understood things; they want to explain
the way someone else has explained things.

They can do this by:

Adopting a synchronic form of explanation that makes sense of individual beliefs by
relating them to wider webs of belief, and that makes sense of these wider webs of
belief by relating them to intellectual traditions. Because beliefs relate to one another
in webs, we can present a belief as rational by describing the web to which it belongs.
(Bevir 1999: 29)

To account for change in belief, as we might do when considering ‘the crisis of
faith’ experienced by individual Victorians in the wake of Darwinism (an example
Bevir actually gives) the historian of ideas has to take into account ‘departures from
traditions by reference to the reasons people have for extending, modifying, or even
rejecting the traditions that provided them with their initial inheritances’ (Bevir 1999:
221). Adopting a diachronic position the historian of ideas will take into consideration
the role ‘dilemmas’ play in the modification of belief. And because ‘beliefs form
webs’ the historian of ideas will argue that ‘no belief is immune from revision [which]
dilemma can inflict [on any] of our moral, philosophical, religious, scientific, historical,
or other subsets of belief’, a state of affairs which emphasises the ‘human capacity for
agency which implies that change originates in decisions made by individuals, not in
the inner logic of various traditions’ (Bevir 1999: 222–23). Importantly: ‘Individuals
initiate change by exercising their reason in the local context of their existing beliefs’
(Bevir 1999: 223). The latter takes account of the usefulness of the biographical
element in the method of the history of ideas. Bertaux (1981: 41) writes that ‘social life
is made out of struggles whose outcomes are unpredictable’.

There can be no doubt of the power of particular ideas to move individuals to action;
and a recognition of this propensity is missing in the approach taken by those who
regard ideas as a [passive] product of mind. Thus one of the issues confronted in
writing this thesis, is where is the person in the history of ideas? Where is the person in
the history of theories? Where is the ‘human thinking and feeling’ and where is the
‘agency’ which is a counterpart to action.

Conceptual change does not occur as a series of random fluctuations totally
unrelated to human agency. Nor is it exclusively the result of the self-conscious
attempts of a few thinkers to devise a more coherent set of beliefs. Rather, conceptual
change occurs because all of us are individual agents who reflect on the traditions we
inherit in the light of our own experiences and thereby alter these traditions in
accord with our own reasoning. (Bevir 1999: 225)

Bevir’s (1999) folk psychology is one way to understand method in the history of
ideas and Bevir extends his method into his philosophy of the history of ideas which
then both acts as a [partial] critique of Lovejoy’s supposed ‘pure reasoning’ and points in a direction which can be judged as a really promising one for future efforts.

There appears to be some tentative consensus that the history of ideas examines the interrelatedness of the product of human intellect and human action, and various authors have spoken of this product as constituting a ‘web’. Dilthey (1961: 74) is one who is of the opinion that ‘history does not lie in something outside the experiences which gives them unity but is contained in them and constitutes the connections between them’. He also asserts rather enigmatically that ‘the past lures us mysteriously on to try to understand the web of meaning of its elements’ (Dilthey 1961: 100 [emphasis added]).

**Other Approaches: The Great Man Theory of History versus the Concept of Zeitgeist versus the Concept of Paradigm**

Lovejoy argued in the prologue to *The Great Chain of Being* that there exist ‘different casts of mind’ operating to give an era its characteristic metaphysical and philosophical qualities. In 1950, the psychologist Edwin G. Boring expressed this with some clarity in respect to progress in science. Boring considered that there were mainly two ways of understanding the process of change in science, and particularly his own field, psychology. The first approach was ‘the great man theory of history’. The second approach, one which was popular in the nineteenth century focused on the influence of the *Zeitgeist* or the ‘spirit of the times’ as informing an understanding of history; with the historian considering conditions peculiar to a society at a given time as influencing the nature of the ‘mind-set’ the philosophical bent, the innovations and insights created by that society. The former stresses psychological influences, the second cultural influences (Valentine 1992). The former is ‘personalistic’ [referring to the influence of those who today might be called ‘movers and shakers’]. The latter, the ‘naturalistic’ view is broader. It allows that an individual, for example Darwin, may contribute new thought, but sees that thought as the result of antecedent conditions. For example the [unacknowledged] influence of the evolutionary speculation of his grandfather Erasmus Darwin within a particular social and scientific milieu which encouraged intellectual, particularly scientific speculation of a highly creative kind. Valentine (1992) in relation to ways of studying the history of psychology discusses the notion of ‘paradigm’ as proposed by Kuhn particularly the proposition that paradigms maybe implicit rather than explicit. A [scientific] community’s shared paradigm may be found be examining its textbooks, lecture notes and laboratory exercises, which reveal how the members of that community learn their trade (Kuhn 1970: 43). Arguably Kuhn (1970: 43) is putting forward a rather Lovejovian point of view when he states that
when determining the nature of a community’s shared paradigms it is the object of the historian to discover ‘what insoluble elements, explicit or implicit, the members of that community may have abstracted from their more global paradigms and employed as rules in their research’ [emphasis in original]. The implication that paradigm may be implicit rather than explicit places the concept comfortably within the realm of the history of ideas. Paradigm is a concept broad enough to embrace ways of seeing and understanding in the social-sciences.

**The Complex of Ideas**

Lovejoy’s (1936: 14; 22; [1938] 1948: 8) use of phrases like ‘idea-complexes’ ‘association of ideas’ and ‘overt’ and ‘latent’ implications have received less attention than the unit idea. Carl Jung (1971, 6) introduced the idea of the complex to explain the functioning of the individual psyche. Though there is no formal Jungian discourse on history, Jung supported the dictum that ‘everything is flux’; everything was potentially ‘historical’ because: ‘Truth is not eternal. It is a programme to be fulfilled’ (Jung 1971, 6: 59–60; Humbert 1988: 91).

The idea of the complex is a useful one which may be applied to historiography, because the notion of the complex as conceptualised by Jung is related to another important concept in Jungian theory, that of the collective unconscious. Jung (Jung 1976: 60) said of the (collective) unconscious:

> In addition to our immediate conscious, which is of a thoroughly personal nature and which we believe to be the only empirical psyche… there exists a second psychic system of a collective, universal, and impersonal nature which is identical in all individuals.

This ‘common psychic substrate of a suprapersonal nature’ acted as a ‘reservoir’ of shared images and ideas capable of activation and association should certain conditions prevail (Humbert 1988: 113). Those conditions are usually emotionally triggering events. Quine and Ullian (1978: 10) with respect to belief and belief change hold that ‘belief is not… a job be got on with. Rather believing is a disposition that can linger latent and unobserved’. What is striking about Lovejovian historiography—contrary to the charge of ‘excessive concern for uniformity and continuity’ is its dynamism. There is in the notion of complex, the sense that ideas come and go yet leave a residual trace. This is not necessarily accumulative. His way of looking at the process of change does take into consideration the emotional, the affective, element in history. Lovejoy (1936: 23) toward the end of the Preface to *The Great Chain of Being* wrote that:

> No doubt man’s quest for intelligibility in nature and in himself, and of the kinds of emotional satisfaction which are conditioned by a sense of intelligibility, often, like a caged rat’s quest of food, has found no end, in wandering mazes lost. But though the
history of ideas is a history of trial and error, even the errors illuminate the peculiar nature, the cravings, the endowments, and the limitations of the creature that falls into them, as well as the logic of the problems in reflection upon which they have arisen; and they may further serve to remind us that the ruling modes of thought of our own age, which some among us are prone to regard as clear and coherent and firmly grounded and final, are unlikely to appear in the eyes of posterity to have any of those attributes.

**The Eclectic Program and Methodological Pluralism**

Kelley (1990a) in writing of Lovejoy’s contribution to the interdisciplinary and eclectic focus of the history of ideas looks back to the ‘proto-history’ of the field to early efforts to embrace an ‘encyclopedic’ approach. And at least from the Renaissance ‘according to humanist formula’ to an approach which embraces ‘all the arts and sciences’ (Kelley 1990a: 5). Within philosophy too the antecedent tradition of eighteenth century philosophical eclecticism associated with the French Philosophes and the so-called Scottish Enlightenment is summoned in defence (Kelley 1990a: 8).

‘Pluralism of theories and metaphysical views is not only important for methodology, it is also an essential part of a humanitarian outlook’ is the position taken by Feyerabend (1975: 52). Bevir (1999: 88) also opens up the possibilities for reforming method:

The proper contribution of method is neither to legislate to historians, nor decide between good and bad history. It is rather to draw the attention of historians to sources of evidence and fruitful ways of thinking about the past. Methodologists should develop the craft of developing their discipline instead of addressing philosophical issues about its logic.

In a note he argues that ‘the distinction between logic and heuristics lends support to methodological pluralism since it suggests that a variety of methods could lead one to an objective understanding of a work’ (Bevir 1999: 88n). He recommends the arguments in favour of methodological pluralism made by Paul Roth. Roth (1987: 82) argues for methodological pluralism on the grounds ‘that it maximizes opportunities for humans to exercise freedom of thought… developing a basic open-ended notion of rationality… supporting John Stuart Mill’s notion of liberty’; one which is compatible with Mill’s understanding of the quest for understanding as a ‘self-regarding’ activity. ‘In the context of the social sciences, methodological pluralism would promote both intellectual inquiry and human freedom’ while eschewing the Feyerabendian exhortation: ‘anything goes’ (Roth 1987: 82).

**Summary of the History of Ideas as Applied in this Thesis**

If the historian of ideas take seriously Bevir’s (1999) suggestion that we reject only the idea that the search for evidence must take a certain form, then we will accept a holistic
approach to method which finds a place for some of the older concepts (like *Zeitgeist*) operant in the history of ideas. The historian of ideas may also accept R. J. Burrow’s (1987: 3) observation:

The history of ideas or intellectual history… attends to the reflective communal life of human beings in the past; to their assumptions, arguments, inquires, ruminations about the world and themselves, their past and their future and their relations to each other, and the various vocabularies and rhetorics in which they conducted these.

S/he may also accept Burrow’s and historians’ general criticism of the field with respect to a perceived lack of an ‘acceptable model or vocabulary’ informing method. Yet the historian of ideas may also appreciate the statement:

There is not… at the moment… and it is better that there should not be, any single, unified methodology, conceptual scheme, theoretical language whose use definitively characterises intellectual history and its practitioners. (Burrow 1987: 18)

In favour of the attempt made here to actualise the history of ideas we go past the limiting focus on the unit-idea toward an effort to carry out a project within the constraints of a lack of an acceptable model informing method. This may be achieved by focussing on the idea-complex as a starting point. This way of proceeding is one which to use Laudan’s (1977) prescription, allows us to take into consideration the interrelated and interconnected meaning and the ‘shifting’ position of an idea within a broader conceptual network, one which is itself undergoing continuous modification. Ideas carried forward as intellectual history can be conceptualised as seeds with the potential to grow; into either flowers or a weeds. This is not a static process, rather it is perceived within the meaning of that disputed word, and arguing contra Skinner (1988): organic. The process of the study of the history of ideas is just that: a process.

Richard Rorty in his preface to *Philosophy and the Mirror of History* (1975: xiii) writes that when he first started studying philosophy he ‘was impressed by the way in which philosophical problems appeared, disappeared, or changed shape, as a result of new assumptions or vocabularies’. Quine and Ullian (1978: 39) make a somewhat similar proposition: ‘As we observe from the uses of computers, the linking of large numbers of trivial little steps may yield knowledge that is itself neither trivial nor obvious.’ It is the goal of the history of ideas to observe the linking of trivial little steps; to perceive Husserl’s ([1913] 1958) ‘experience-fringes’; to recount Foucault’s (1972: 136–37) ‘by-ways and margins’ as well as to ‘cross the boundaries of existing disciplines’ in order to ‘describe the whole interplay of exchanges’ which constitute what human beings do, say and think.

Nevertheless the writer of this thesis supports the position that some kind of dialectical relationship exists between the contribution made by individuals and the
influence of the Zeitgeist. This allows for the kind of ‘multivocal’ approach Lovejoy wished to encourage with respect to understanding the nature and process of intellectual change. The multivocal approach refers to and makes use of texts from any of the areas which Lovejoy specified as making up the interdisciplinary field. In this thesis the ideas of perfection, progress, and evolution are understood to be interrelated in such a way; as part of a ‘web of belief’ informing modern European thought and culture between 1795 marked by the publication of Condorcet’s pivotal *Esquisse*, and the outbreak of the Great War in 1914. The presentation of this complex of ideas is conveyed within the context of the development of the new disciplines of anthropology, sociology and psychology. At the same time the development of these new spheres of intellectual enterprise is discussed in the context of influences and input from other areas of human endeavour including the realms of art, commerce, technology and communications.

**The Three Aims of this Thesis**

This thesis has three main aims. The first aim represents an attempt to demonstrate the integrative character of an aspect of the history of thought, rather than an attempt to disentangle it as Lovejoy set out to do. This is attempted by examining the hypothesis (a word here used loosely) that scientific, philosophical and literary discussions about the ‘possible improvement of the human breed’ (as Francis Galton conceptualized and described it) is part of a complex of associations embracing the ‘idea of evolution’, the ‘idea of progress’ and the ‘idea of perfectibility’. In this thesis, an attempt is made to demonstrate that this complex constitutes a powerful affective intellectual force, one which influenced both major and minor thinkers; and one which by its very nature—ungraspable and elusive—remains resistant to precise examination.

A second aim of this thesis is an attempt to examine this complex of associations by ‘crossing the boundaries’ that traditionally mark off one discipline from another; or to use Lovejoy’s (cited in Wilson 1980: 188) words: ‘to ignore the traditional boundaries of scholarship in order to pursue a consideration in all its ramifications and explore the implications of a philosophical position.’ The writings of scientists, philosophers, sociologists, psychologists, educationists, art-historians, historians, literary critics as well as economists and statisticians are used to explore the broad dimensions of the topic in light of Lovejoy’s (1936; 1940; [1938] 1948) recommendations. It is asserted here that through the agency of such cross-disciplinary fertilization informally and formally transacted, an idea can be seen to shift its position within a particular conceptual network and to go through a process of modification, which ultimately results in its evolutionary development.
A third and final aim of this thesis, one owing less to Lovejoy and more to the personal interest and intellectual inclination of the thesis writer, is to introduce a strong biographical element into the discussion of how ideas develop and are carried along in history. Again, however, we look to Lovejoy and his statement that ‘ideas are commodities that enter into interstate commerce’ for inspiration. This is interpreted here (rather obviously perhaps) to propose that ideas are ‘exchanged’ through human interaction. However ideas as commodities are more successfully exchanged when a value is attached to the intellectual concept being exchanged. Further, without the idiosyncratic and emotional attachment of certain individuals to certain ideas within particular social settings, ideas would not travel as they do: the individual being compelled to champion or defend his (it is mostly his in this thesis) ideas in the intellectual marketplace; a situation which is well demonstrated by the main actors in this thesis, whether they be scientists or writers.

Making use of the interdisciplinary perspective in the analysis of the interrelationship of understandings of perfection, improvement and evolution, this thesis focuses on the older spheres of intellectual activity: philosophy and history; and on the nascent disciplines of anthropology, sociology, psychology and economics. The major voices are those of a philosopher/mathematician (Nicolas Condorcet), the historian/essayist (Thomas Carlyle), the sociologist (Herbert Spencer) and the psychologist (Francis Galton) and to a slightly lesser extent the economist (Thomas Malthus). The development of anthropology is used as a ‘linking’ device to show both the important role played by the non-professional or amateur in the transmission of knowledge across disciplinary boundaries; between privileged groups/individuals and the rest of society; and as a means to demonstrate the crossing of actual geographical boundaries. The heterogeneous interdisciplinary group which constituted the world’s first anthropological society *la Société des observateurs de l’homme* is examined; and this tradition is re-examined in the context of late nineteenth century amateur anthropology in Australia through the person of Dr Alan Carroll.

Throughout the thesis mechanism in which the diffusion of ideas takes place is examined. Principally this is seen to take place through the efforts of individuals dedicated to the transmission of knowledge or particular kinds of knowledge. Be it entrepreneurial as in the case of the scientific administrator Bernard le Bovier de Fontenelle or even Dr Alan Carroll; the polemic journalism of William Rathbone Greg or the moralistic novels of William Winwood Reade.

Applying the recommendations of the Lovejovian (1936; [1938] 1948) program an examination is undertaken of:
1. Implicit assumptions or unconscious mental habits operative in the thoughts of individuals or a generation. Here it is applied in its Lovejovian sense of a consideration of the ‘disposition to think in terms of certain catagories or of particular types of imagery’ during the late eighteenth and during the nineteenth century to 1914.

2. Individual and societal [particularly group] responses to the dilemmas posed by changing perspective of evolutionary discourse and its impact on social improvement in nineteenth century Europe, England and Australia.

3. Describing philosophical tendencies characteristic of the nineteenth century and its resonance in the formal and informal writings of the major and minor authors in the social sciences.

4. An analysis of some of the characteristic ‘texts’ (primarily interpreted as words and images) of the period. The meaning of text has been extended here to include that which communicates meaning symbolic of an era; which may include the built environment (architecture) and the products of technology and advances in communication.

5. The juxtaposition of the contribution of major and minor ‘authors’ in the discussion of evolution in particular. In this case making use of Lovejoy’s advice that while in our pursuit of intellectual history concern focuses on the ‘beliefs, prejudices, pieties, aspirations current among the educated classes’ we are also interested in the way an idea ‘attains a wide diffusion which become the stock of many minds’ during the nineteenth century. Focus is placed on those who functioned as a conduit for the transmission of ideas.

One of the problems in ‘doing’ the history of ideas is one which is raised by John Burrow in the John Coffin Memorial Lecture presented in 1987:

What we have to accept in the history of ideas, as in other branches of scholarship, is the endless alertness required in our attempts both to accept the complexity of the past and to express our sense of its coherences, to acknowledge its distinctiveness without losing sight of its human energy and variety, so that we do not reduce its inhabitants to implausible puppets, manipulated… by whichever model we devise for understanding but also for distancing them. To do this we have to formulate concepts but we also have to struggle against them, to see them simultaneously as potentially useful guides and as tiresome officious couriers, trying to package and standardise our perception of the alien. There is no definitive conceptual resting-place, no ultimate methodological vantage-point. And this… should neither surprise or dismay us, because we do not have these in our relations with and attempts to understand the human beings with whom we share the world as contemporaries. Why should we expect to enjoy our relations with the dead more complacently? (Burrow 1987: 21 [emphasis in original])
Paraphrasing Thomas Kuhn (1977): how do we fruitfully engage in a dialogue with actors and ideas in the past? How do we assess the veracity of their communications? The answer might be that we will engage only in a process espousing an ‘Edifying philosophy’, one which ‘aims at continuing a conversation rather than discovering a truth’ (Rorty 1979: 359).

This thesis through the method of its presentation which is more or less a documentary and explorative one, suggests that there was not one theme, but rather a ‘complex’ of associations connected with the notion of human improvement during the nineteenth century. That ideas—about human social progress, physiological and spiritual perfectibility, and about the process of change and even evolution—is a concurrent phenomena experienced at the intellectual and philosophical level supported by action in the world; and that that action is modified by the singularity of the individual; that is by character, intelligence and social arrangements which cut across geographic as well as disciplinary boundaries.
Chapter 3

The True Perfection of Mankind

Is the human race to better itself, either by discoveries in the sciences and the arts, and so in the means to individual welfare and general prosperity; or by progress in the principles of conduct of practical morality; or by a true perfection of the intellectual, moral, or physical faculties of man, an improvement which may result from a perfection either of the instruments used to heighten the intensity of these faculties and to direct their uses of the natural constitution of man? In answering these three questions we shall find in the experience of the past, in the observation of progress that the sciences and civilization have already made, in the analysis of progress of the human mind and its faculties, the strongest reasons for believing that nature has set no limit to the realization of our hopes.


Focus of Chapter

In this chapter perfection, progress and evolution are discussed as a complex of ideas which demonstrate Lovejoy’s (1948: 9) conceptualization of the field of the history of ideas as concerned in part with ‘thoughts concerning particular aspects of common experience… which have long life histories of their own’ and which are ‘found at work in the most various regions of the history of human thinking and feeling’. An examination of the semantic meaning of the word perfection is carried out and the connection is made between a symbolic representation of this tripartite idea in Greek mythology and an early understanding of the nature of historical change and human social and biological evolution. An explanation is given of the principle of progress via an explication of the myth of Hesphaestis the Greek god of the forge, and the metaphysical and implicitly metaphorical representation of this myth in Enlightenment philosophy, and particularly in the futuristic philosophy of the eighteenth century French philosopher Nicolas de Condorcet (1743–94) (Fig. 1). The expansion of philosophical ideas into the newly developing and as yet ‘undifferentiated’ spheres of anthropology, sociology and psychology is begun with a particular emphasis on the notion, shared across the millennia, that harnessing technology in the service of human physical and mental development is the enabling factor in the realization of the true perfection of the intellectual, moral, and physical faculties of humankind and the way
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of civilization. So powerful is this notion that it may warrant being called a ‘unit-idea’ in the Lovejovian sense.

**The Idea of Perfection**

In the preface to a collection of original source essays which provide a historical overview of various thinkers’ ideas of the nature of history of the idea of progress, George H. Hildebrand refers to the *idea of progress* as ‘the dominant conception in the European outlook from the late seventeenth century until the First World War’ (Hildebrand 1949: v, 29). Instructively, this collection of essays begins with lines from Hesiod’s *Works and Days* (c. 700 BC): ‘And if thou will, yet another tale I will build for thee, well and cunningly, and do thou lay it to thy heart: how from one seed spring gods and mortal men.’ The essays end with the opinion expressed by Charles Darwin in *The Descent of Man and Selection in Relation to Sex* ([1871] 1883: 130) that ‘the social and moral qualities would tend slowly to advance and be diffused throughout the world’, though is also Darwin argues:

> very difficult to form any judgement why one particular tribe and not another has been successful and has risen in the scale of civilization. Many savages are in the same condition as when first discovered several centuries ago. As Mr. Bagehot has remarked, we are apt to look at progress as normal in human society; but history refutes this. (Darwin [1871] 1883: 132; Teggart 1949: 450)

The representative essays then span the twenty-five centuries of ‘antecedent speculation’ on the conceptual and historical nature of the idea of progress while at the same time endeavouring to uncover the ‘whole conceptual framework of the social disciplines in the their formative period’ (Hildebrand 1949: v). The authors represented do indeed create for the reader an overview of Western thinking in the social sciences, and serve in their various ways as Hildebrand (1949: v) points out to lend support to Aristotle’s dictum that ‘the same ideas recur in men’s minds not once or twice but again and again’.

**The Idea of Progress: An Inquiry into its Origin**

It is not the intention in this chapter to explore in a detailed manner the writings of those who sought to expound on the subject of the nature of human progress over a period of twenty-five centuries; this would be a mammoth task. However, it is necessary in the first instance, in order to construct a foundation on which to build the structure of this thesis, to explore and discuss some of those ideas about human

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1 Walter Bagehot (1820–77). English economist, journalist and editor (after 1860) of *The Economist* applied the theory of evolution to his writings on politics.
progress which have found form in both the popular imagination and in scholarly thinking over the centuries.

In the pathfinding *The Idea of Progress: An Inquiry into its Origin* J. B. Bury ([1932] 1955: 2) highlighted the directional nature of progress in the following well-known and succinct statement: “‘The idea of progress’… means that civilization has moved, is moving, and will move in a desirable direction.’ Following nineteenth century thinking on the matter which is encapsulated in Walter Bagehot’s statement that ‘The ancients had no conception of progress; they did not so much as reject the idea; they did not even entertain the idea’ (Bagehot 1872: 41), Bury (1932) believed the idea to be a modern one, dating only from the beginning of the seventeenth century; and that as a notion it was intimately connected with those intellectual developments that have come to be known as the ‘scientific revolution’.

**Three Principles of Progress**

The idea of progress as most writers of this ‘modern’ period understood it was made up of three main principles:

First, the belief that history follows a continuous, necessary and orderly course; second, the belief that this course is the effect of a regularly operating causal law; and third, the belief that the course of change has brought and will continue to bring improvement. (Hildebrand 1949: 5)

Furthermore:

[In that] progress is conceived of as following a given course along an axis of time… this directional sequence may relate to mankind as a whole; to a supposed “life-history” of each society, or to a presumed “general” course of change in several major social institutions… the idea of progress is [understood to be] a generalizing conception of human experience. (Hildebrand 1949: 3–4)

Bury ([1932] 1955: 6–7) wrote that:

It may surprise many to be told that the notion of progress… is of comparatively recent origin. It has indeed been claimed that various thinkers… long ago conceived it. But sporadic observations—such as man’s gradual rise from primitive and savage conditions to a certain level of civilization by a series of inventions, or the possibility of some future additions to his knowledge of nature… do not amount to an anticipation of the idea. The value of such observations was determined, and must be estimated, by the whole context of ideas in which they occurred. *It is from its bearings on the future that Progress derives its value, its interest, and its power.* You may conceive civilization as having gradually advanced in the past, but you have not got the idea of Progress until you go on to conceive that it is destined to advance indefinitely in the future. [italics added]

Bury ([1935] 1955) also suggests that the intellectual climate of classical antiquity and the ensuing ages were not propitious to the birth of the doctrine of Progress. He is
surprised by this situation considering the fact that the ‘Greeks were so fertile in their speculations on human life’ (Bury [1935] 1955: 7).

Their recorded history did not go back far, and so far as it did go there had been no impressive series of new discoveries suggesting either an indefinite increase in knowledge or a growing mastery of the forces of nature. (Bury 1932: 7)

However as Hildebrand (1949) points out, there was speculation about human development in ancient times that display many themes that are central to the idea of progress and that ‘save for its optimistic vision’ many of the assumptions embodied in the idea arose in classical times (Hildebrand 1949: 5).

Dodds (1973: 1) suggests that even in the nineteenth century there were those like the historian Henry Maine (1822–88) who supported the idea that the Greeks ‘created the principle of Progress’ and that the main reason for a problem in crediting the concept to the Greeks is that the Greeks themselves had ‘no real word for progress’. Yet their literature seems to betray the assumption that they were without such a concept (Nisbet 1980: 11). Hesiod’s Works and Days (8th century BC) is a case in point. The Works and Days blends descriptions of everyday life and farming with ‘episodes of fable, allegory and personal history’. It introduces ethical arguments in favour of hard work as an antidote to idleness and waywardness; discusses the best methods of animal husbandry, and the best days on which to engage in certain activities or commence particular enterprises on land and sea. As well, it includes a biographical element in which Hesiod offers advice to his brother who appears to have bribed corrupt judges to deprive Hesiod of his inheritance (Encyclopaedia Britannica, 14th edn., s.v. ‘Hesiod’; Sinclair 1966: ix–xxv).

While ‘to Hesiod as to the Old Testament prophets there was no cleavage between agricultural and ethical instruction’ it is perhaps the first work in the European tradition to use poetry in this way (Sinclair 1966: x; Nisbet 1980: 14). However, what makes this ‘didactic and admonitory medley’ valuable to the examination of the idea of progress is three stories that Hesiod, ‘who knew well the value of legend, or rather history, for illustrating and driving home a lesson… introduced to explain why man suffers’ (Sinclair 1966: x). The stories which Hesiod used as a vehicle for this didactic purpose were the story of the ‘Five ages, or ‘races’ of the World’, the story of Prometheus, and the story of the ‘Creation and equipment of Pandora’.

The Myth of the Five Ages

The myth of the five ages is important because it introduces the notion of cyclical degeneration into the discussion of human history. One version of this idea and there
are a number of interpretations from Hesiod’s work is that the world moves in cycles with degeneration taking place within each cycle (Nisbet 1980: 13–18; Sinclair 1966: 15). Thus the first cycle was: Golden Age, Silver Age, Bronze Age, each age being worse than the previous one. Then a second cycle began commencing with the Age of Heroes and degenerating into the Age of Man (Iron). It is in this age that Hesiod finds himself and wishes heartily that he had been born in the age before (Heroes) or in the age after which would again be Golden. Hesiod seems to present the notion that human history is a continuous process of degeneration in which material progress (such as the use of metal in creating socially useful implements) is accompanied by moral decline (such as political oppression) (Sinclair 1980: 15).

Nisbet (1980: 15) notes that there is no implication in Hesiod’s work of ‘any genetic descent of the races’. He also suggests that the naming of races or ages in terms of metals points in the direction of an archaeological awareness of an historical past. It is also apparent that the use of metal is a metaphor for any kind of progress technologically speaking, and reference to metals in these ancient stories is also a metaphor for the process of creation, for it is the god of metal Hephaestus who creates the first woman. The story of Prometheus is also told by Hesiod. It forms one of the building blocks to the Western notion of progress presenting as it does the progress of humankind from a state of deprivation and want to a state of plenty through the acquisition of fire. It would be told again in the 5th century by Aeschylus in \textit{Prometheus Bound} in which ‘Prometheus whose name means “Forethought”, stole fire from the gods and gave intelligence and technology to man’ and is in consequence punished by the gods for his presumption and arrogance (Spatz 1982: 138).

Pandora, who like the Biblical Eve was the first woman and whose name meant ‘giving all’ or ‘the All-Gifted’ was made by Hephaestus the god of fire and metal on the order of Zeus, and given in marriage to Prometheus’s ‘guileless’ brother Epimetheus (Radice 1973: 184; Evans 1974: 799). She came with a jar or ‘box’ into which all the gods had put some ‘power’ which could bring the ruin of the human race. Foolishly Epimetheus opened the box and all manner of forces escaped save for Hope which was left behind. Thus the ambiguity of the concept is evident. It is apparent that the Greeks used technological development as a yardstick for progress. At the same time the acquisition of such knowledge brought calamity in its wake.

Yet Dodds (1973: 1) suggests that the idea of progress did not come easily to early Greek society. In common with other primitive cultures the Greeks lacked historical records. In as much that they could ascribe particular inventions to certain gods or heroes they did not conceptualise the creation of inventions as ‘progressive’ or as a mark of progress in and of human society.
They did not think of them as forming a continuous ladder of ascent, and still less as one continuing into the present and the future. It is therefore not surprising that the idea of progress should be missing from the oldest Greek literature. And when it did emerge it found the field already occupied by two great anti-progressive myths... the myth of the Lost Paradise and the myth of the Eternal Recurrence. (Dodds 1973: 2–3)

Progress as a Theme in History, Philosophy and Social Science

The ‘idea of progress’ figures prominently as an area of interest within a number of disciplines. It is intimately yet broadly connected with the study of and problems in history, philosophy, and the social sciences (Ginsberg 1953; Bury 1955; Mandelbaum 1971; Nisbet 1980; Collingwood 1994). The theme tends to ‘cross boundaries of existing disciplines’ with ease, giving the historian of ideas a broad prospect over which to cast his or her vision, and a broad terrain over which to cast his or her concern (Foucault 1972: 137). Yet it is this very broadness of prospect that makes it difficult at times to focus attention on the essential details of this conceptual landscape. For the ‘idea of progress’ seems at one and the same time to be self-evident and intuitively simple, as well as tantalisingly complex if not definitely deceptive. It is a phrase that embraces a complex of associations and is easily confused with other concepts, particularly that of ‘the idea of perfectibility’. In fact the two concepts are often used interchangeably; and they are further associated with other concepts and ideas that appear to form part of the complex. Evolution is such an idea.

Progress and Perfectibility

The idea of ‘progress’ is usually understood within a frame of reference that associates it with its etymological root from the Latin progressus, meaning going forward and ‘proceeding to a further or higher stage, or through such stages successively’. The dynamic and directional nature of progress is emphasised. There is also the added meaning asserted by the Macquarie Dictionary definition of progress as ‘growth or development; continuous improvement’ which gives a sense of inevitability about the process so defined. Virginia Muller (1985) has provided an insight into the contrast between the concept of the idea of progress, and meaning inherent in the concept of perfectibility.

She locates the idea of perfectibility ‘on an axis of meaning’ which places the ‘concept of perfection on one end and the notion of progress on the other’ (Muller 1985: 2). She reflects upon the ‘multiple connotations’ of the concept and sets out to define the term and to examine its etymological roots. Muller (1985: 2) makes use of Martin Foss’s definition that ‘perfection is the conformity of a reality to its concept’ a definition that stresses the notion of perfection as completion, in which sense it reflects
the connection between the Greek words *teleos* meaning perfect and *telos* meaning end (Foss 1946: 2). Thus a thing may be thought perfect when it fulfils its nature or end. Muller notes that the definition as given in the *Oxford English Dictionary* relates this idea of purpose to both the process and the state of perfection. The definition ‘the action, process or fact of making perfect or bringing to completion’ identifies the notion of an inherent ‘process’ which may be seen as crucial in the ideas of progress and perfectibility, while the additional meaning ‘the fact or condition of being perfected or completed; [the] completed state [or] completeness’ points to the static aspect of perfection’ (Muller 1985: 2–3):

Etymologically, perfection has its roots in the Latin *perficere* which is constructed from *facere*, to make, and *per*, which implies thoroughly. Something is perfect then when it is thoroughly made. A thing which is not thoroughly made is not fully complete and will not fulfil its nature or purpose. (Muller 1985: 2–3)

The implication for humanity becomes apparent. That which determines wholeness: the possession of all mental and physical faculties determines rightness in the first instance. The lack of a faculty—of sight, of hearing, or physical mobility, or of basic intelligence renders the individual imperfect. With potential negative consequences for both individual and society. Physical deformity such as that depicted by Quasimodo the hunchback in Victor Hugo’s novel *Notre Dame de Paris* (1831, trans. The Hunchback of Notre Dame) renders him imperfect. Similarly the social exclusion of a particular group as depicted by Esmeralda the gypsy in the same novel is a further example. Both are subject to social abuse. The idea of imperfection (L. *imperfectus*, unfinished) passes from individual to class, from class to individual. The willingness of apparently well-meaning and civically-minded individuals to seek means to make more perfect, to improve/correct/educate the ‘actively anti-social and morally indirigible’ (Mazumdar 1980) elements of the working class in late nineteenth century Britain and America attests to the power of the idea of perfection. On the level of social discourse it is this which drives the centuries-old speculation on the means, the possibility and the desirability of implementing programs of direct intervention in human breeding and which informed controversial nineteenth and twentieth-century programs of human biological improvement such as eugenics.

**Perfectibility in Western Philosophy**

However, Foss (1946) and Muller (1985) place their discussion of the idea of perfectibility in the context of the development of Western philosophy, religion and political history. Foss is primarily concerned with the notion of perfectibility as it relates to ethics, aesthetics, and theology in the Greek and Judeo-Christian tradition. Perfection as understood by the Greeks he suggests, ‘inclines toward a hypostasis’
The Greeks adopted as their measure of perfectibility that which was intellectual, abstract and technical. Acutely aware of the limitations of human existence (as revealed in their drama):

The Greeks elevated to the highest level that activity that raised men above the animal: thinking. Our judging, inferring, abstracting, and systematization. They were enraptured by the splendour of spiritual accomplishment and the sublimity of the intellect. For them—and following them throughout the succeeding centuries—perfection meant the perfection of scientific systematization. (Foss 1946: 12–13)

Their ideal became the ideal of Descartes (1596–1650) in the seventeenth century, whose philosophy—like that of the Sophists—was to a great extent the methodology of clear and distinct thinking, itself a measure of perfection. Even Spinoza (1632–77) and Leibniz (1646–1716) fell partly under the spell of the Cartesian influence, and everywhere the result was an inclination toward mechanization and the transformation of life into a system of fixed objects (Foss 1946: 13). At the same time the influence at the end of the eighteenth century of the idealist strain of philosophy epitomised by the complex writings of George William Friedrich Hegel (1770–1831) and in the persistence through the nineteenth century of ideas associated with Romanticism’s evaluation of human life as subject to improvement (through poetry, music, the arts generally and particularly through education) provides an opposing view which served to create the tension which is evident in the work of so many writers of the time.

**History and the Idea of Progress: Hegel**

Hegel’s view on the process of the progress of history developed out of his idealist philosophy which presupposes that the world (understood as concrete objects, that is, ‘things’) as experienced through the human senses is only part of the truth. The other part of this truth is the recognition of the role played by the mind or spirit or the cosmic ‘Geist’ in a ‘dialectical relationship’, where there is an interplay between the finite (a human life incorporating the individual ego) and the infinite (which Hegel identified with [the Christian] God). The force which is the spirit governs the direction of human history which he understood as the ‘autobiography of God’ which constitutes ‘Universal history’ and is inevitable and forward moving; but it is not evolutionary in the Darwinian sense because Hegel understands nature to be outside of Geist ‘which alone has history’ (Taylor 1975: 354). This was not however incompatible with the idea that Reason or Self-consciousness is in and of itself a defining purpose of human agency and action in this process. Hegel wrote in the *Phenomenology of Mind*: ‘Self-consciousness exists in itself and for itself, in that, and by the fact that it exists for
another self-consciousness; that is to say, it is only by being acknowledged or “recognized” (Hegel [1807] 1910: 175 [emphasis in original]).

He also adopts as a central element in his system of philosophy the necessary process of growth and decay or ‘the power of the negative’—that is creativity and its opposite death thereby creating a dialectical relationship or ‘tension’ between opposite forces—and reconstruction upon a higher plain, the ultimate aim of which is unification with Geist, which is infinite thus making the whole process a continual one. Initially in his writing he conceives of this process as embodying the likes of a Phoenix which self-consciously destroys itself and is reborn in a new form: So each historical stage has in it the seed of its own destruction and its transformation. Hegal writes in *The Philosophy of History* (1830–31) of the nature of historical change as he conceptualizes it:

The abstract conception of mere change gives place to the thought of Spirit manifesting, developing, and perfecting its powers in every direction which its manifold nature can follow. What powers it inherently possesses we learn from the variety of products and formations which it originates.

The very essence of Spirit is activity; it realises its potentiality—makes itself its own deed, its own work—and thus becomes the object to itself... Thus is it with the Spirit of a people: it is a Spirit having strictly defined characteristics, which erects itself into an objective world, that exists and persists in a particular religious form of worship, customs, constitution, and political laws—in the whole complex of its institutions—in the events and transactions that make up its history. That is its work—that is what this particular nation is. Nations are what their deeds are. Every Englishman will say: we are the men who navigate the oceans, and have commerce with the world... The relation of the individual to the spirit is that he appropriates to himself this substantial existence; that it becomes his character and capability, enabling him to have a definite place in the world—to be something.

But this having been attained, the activity displayed by the Spirit of the people... is no longer needed; its has its desire. The nation can still accomplish much in war and peace at home and abroad; but the living substantial soul itself may be said to have ceased its activity... Thus perish individuals, thus perish peoples by a natural death. (Hegel 1881: 76–7 [emphasis in original])

This Spirit of which Hegel speaks is manifested through the combined actions of human beings through their interaction in social life. The supreme expression of this collective social life is embodied in the constitution of the state. Thus the famous ‘dialectic’ is of two forms: one which is historical and one which is ontological. It is through grappling with the ‘inner contradiction’ inherent in on the one hand certain human social/historical relationships like the relationship between ‘master and servant’ and on the other through the individual’s struggle with his or her own perception of reality that change takes place. However the two are bound up together: As Hegel authority Charles Taylor (1975: 132) puts it:

Reciprocally, while historical dialectics [in Hegel’s philosophy] deals with the contradiction between certain historical forms and the basic purposes sought in them,
this is also bound up with a contradiction in men’s ideas. Indeed, the way men conceive the basic purposes of mankind is essential to the characterisation of any given historical form and its inadequacy. That men at the beginning of history are incapable of realizing man’s potential is bound up with their inability to conceive the goals of man (and Geist) adequately.

Hegel’s philosophy was very much part of the tradition of German Naturphilosophie current at the end of the eighteenth century. It was also very influential, and aligned with Romanticism it stressed dynamic tensions between Reason and Spirit. For Hegel philosophy and religion were one. Philosophy made real the truths of religion of which Christianity was its perfect embodiment.

Hegel’s concept of historical change and his expression of this concept in his writing strikes a different note to that of Marx. The difference in tone suggests a dramatic shift in a psychological sense; in the sense which the English writer Thomas Carlyle (see Chapter 4) in various essays identified as that tumultuous, nerve-racking change, change which is full of potentiality which marks the shift from an eighteenth century to a nineteenth century perspective.

What Marx did was to take Hegel’s ideas and in a sense bring them down to earth; following on from the ‘young Hegelians’ a group of young radical intellectuals who sought to modify Hegel’s ideas by shifting the focus from philosophy and religion to politics and nascent sociology (McClellan 1973). ‘Progress through conflict was the watchword of these anti-establishment radicals’ (McClellan [1992] 1998: vii). The most influential members of the group were Bruno Bauer, Max Steiner, Moses Hess and Ludwig Feuerbach (1804–72). In the writing of Ludwig Feuerbach in particular Marx found a voice which was conducive to his own speculations on the nature of human fulfilment and social development.

**Ludwig Feuerbach and Human Perfection**

Feuerbach came from a liberal German family and first studied Protestant theology at the University of Heidelberg. He abandoned theology in favour of philosophy after he attended Hegel’s lectures in Berlin between 1824 and 1828. As a Hegelian convert he presented his Doctoral thesis *De ratione, una, universalis et infinita* (Reason: Its unity, universality, and infinity) at the University of Erlangen in 1828 (McClellan 1969; Wartofsky 1977). Even in this thesis he was already moving away from Hegel in arguing against the centrality of Christianity as the ‘perfect’ religion, and eventually adopted the theme ‘common to all the Young Hegelians, the incompatibility of philosophy and religion’ (McClellan 1969: 87; Wartofsky 1977: xviii). While most Young Hegelians still maintained the idealist perspective which presumed that all thought (including religious thought) was an aspect of Spirit, Feuerbach dramatically
argued in *The Essence of Christianity* (1841)—thus going against both Hegel and the Young Hegelians—that religion was itself a projection of human needs and desires. This was an idea which had already been mooted in the writing by one of the ‘Old Hegelians’ D. F. Strauss (1808–74) in his *Das Leben Jesu* (The life of Jesus) in 1835 where he argued that the Gospel narratives were ‘imaginations of facts produced by the collective consciousness of a people who had arrived at a specific stage of development’ (McClellan 1969: 3).

After declaring that what separates the brute from humankind is ‘consciousness’ and that where there is ‘this higher consciousness there is a capability of science [which] is the cognisance of species’ ([1841] 1957: 1–2) Feuerbach ([1841] 1957: 2) argued that what set humans apart from animals was the capacity for empathy or what he called ‘I and Thou’ describing this ability as follows:

He can put himself in the place of another, for this reason, that to him and his species, his essential nature, and not merely his individuality, is the object of thought.

Religion being identical with the distinctive characteristic of man, is then identical with self-consciousness—with the consciousness which man has as his nature. But religion, expressed generally, is consciousness of the infinite; thus it is and can be nothing else than the consciousness which man has of his own—not finite and limited, but infinite nature.

Elsewhere he further articulated this view: ‘The true dialectic is not a monologue of the solitary thinker with himself; it is a dialogue between ‘I’ and ‘You’ (Feuerbach 1972: 244 [emphasis in original]; see Buber 1923)

Human ‘perfection’ lay in recognition of essentially human qualities with respect to human interaction(s) and existence generally:

Reason, Will, Affection. To a complete man belong the power of thought, the power of will, the power of affection. The power of thought is the light of the intellect, the power of will is the energy of character, the power of affection is love. Reason, love, force of will, are perfections—the perfections of the human being—nay, more, they are absolute perfections of being... We think for the sake of thinking; love for the sake of loving; will for the sake of willing—i.e., that we may be free. True existence is thinking, loving, willing existence. That alone is true, perfect, divine, which exists for its own sake. But such is love, such is reason, such is will. The divine trinity in man, above the individual man, is the unity of reason, love, will. (Feuerbach [1841] 1957: 3)

Feuerbach equated religion with the newly developing branch of knowledge, anthropology.

It is better to say, religion is man’s earliest and also indirect form of self-knowledge. Hence, religion everywhere precedes philosophy, as in the history of the race, so also in that of the individual... Religion is the childlike condition of humanity. (Feuerbach [1841] 1957: 13)
He then set out to demonstrate ‘the true anthropological essence of religion’ by ‘deconstructing’ the tenets central to Christianity, including the ‘mysteries’ of the ‘Creation… out of Nothing’, the Holy Trinity, The Holy Family, the Immaculate Conception, the Resurrection and other biblical narratives and showing these to be projections of human aspirations as well as projections with a strong psychological component:

Miracle is a thing of the imagination; and on that very account is it so agreeable: for the imagination is the faculty which alone corresponds to personal feelings and thus makes objective to man the immediate, absolutely unlimited satisfaction of his subjective wishes. (Feuerbach [1841] 1957: 137)

Feuerbach stated in a letter directed to his publisher:

The objective of religion, particularly the Christian religion, is nothing but the essence of human, and particularly Christian feeling, the secret of theology therefore is anthropology… The foundation of a new science is laid here in that the philosophy of religion is conceived of and presented as esoteric or secret anthropology or psychology. (Feuerbach cited in McClellan 1970: 88)

According to Engels ([1888] 1941: 18):

With one blow it [The Essence of Christianity] pulverized the contradiction [inherent in the Hegelian system and its critique as espoused by the Young Hegelians], in that without circumlocutions it placed materialism on the throne again. Nature exists independently of all philosophy. It is the foundation upon which we human beings, ourselves products of nature, have grown up. Nothing exists outside nature and man, and the higher beings our religious fantasies have created are only the fantastic reflection of our own essence.

The spell was broken… Enthusiasm was general; we all became at once Feuerbachians. How enthusiastically Marx greeted the new conception and how much—in spite of all critical reservations—he was influenced by it.

Karl Marx and a Revolutionary Concept of Change

Marx picked up two important aspects of Feuerbach’s (1841) analysis and critique of Christian theology which would influence his ideas about the nature of the process of historical change: The argument that religious belief is simply a ‘fantastic reflection of our own essence’ and that its ‘human-centred’ methodology could be applied to the analysis of social institutions and human (particularly economic) relationships, in what Marx called ‘civil society’, a point he argued in The German Ideology (1846). Thus deviating substantially from the Hegelian position which held that society as embodied in the state emanated from the working of the Spirit. Marx in his critical Thesis on Feuerbach ([1845] cited in Engels [1888] 1941) argued that Feuerbach’s theological analyses [and Feuerbach’s ‘materialism’] were too ‘theoretical’, too ‘contemplative’, and too little about action (McClellan 1970). Marx holds that ‘Feuerbach… does not conceive human activity itself as activity through objects… He therefore does not

Feuerbach starts out from the fact of religious self-alienation, the duplication of the world into a religious, imaginary world and a real one. His work consists in the dissolution of the religious world into its secular basis. He overlooks the fact that after completing this work, the chief thing still remains to be done. For the fact that the secular foundation lifts itself above itself and establishes itself in the clouds as an independent realm is only to be explained by the self-cleavage and self-contradictoriness of this secular basis. The latter must itself, therefore, first be understood in its contradiction and then, by the removal of the contradiction, revolutionized in practice. Thus, for instance, once the earthly family is discovered to be the secret of the holy family, the former must then itself be theoretically criticized and radically changed in practice. (Marx [1845] cited in Engels [1888] 1941: 83; Pierson 1997: 93; McClellan 1970)

However, this criticism is perhaps [as McClellan (1970) notes] Marx being a little unfair to Feuerbach; giving insufficient credence to the fact that Feuerbach’s main interest was always the philosophy of religion; and importantly Feuerbach ‘did not judge the situation in Germany in the mid-1840s ripe for a transition from theory to practice—and subsequent events proved him right’ (McClellan 1970: 115). There are in fact a lines in Feuerbach’s other writings on religion and philosophy which indicate that he did give thought to the ‘practical activity’ which must come from human engagement in society:

“Science does not resolve the mystery of life.” That may be true. But what follows from this? That you take refuge in faith? That would be falling out of the frying pan into the fire. What really follows is that you turn to life, to praxis. Doubts that theory cannot resolve are resolved by praxis. (Feuerbach [1834–44] 1972: 293)

Even history for Feuerbach’s is conceptualised via religious dissection. While Condorcet ([1795] 1955 [see below, p. 64]) understands historical change and ‘progress’ as a process of mainly technological achievements, Feuerbach (1972: 146) understands history as a process of changes in religious thought and identification. In The Necessity of a Reform of Philosophy ([1842] 1957: 146–7) he presents this perspective:

The historical epochs of mankind are distinguished from each other on the basis of religious changes… Christianity is no longer able to respond to the needs of either the theoretical or the practical man. Nor is it any longer capable of satisfying our mind or our heart, for we have now discovered other interests for our heart than the eternal heavenly bliss.

Feuerbach (anticipating a term A. O. Lovejoy would utilize much later) called his method of analysis—with its singular focus on Christianity—historico-philosophical analysis employing a similar approach to that of the American philosopher with respect to the history of ideas (Feuerbach [1841] 1957: xli; Lovejoy 1936).
Marx’s critique of Feuerbach ends with the captious statement that ‘The philosophers have interpreted the world in various ways; the point however is to change it’ (Marx [1845] cited in Engels [1888] 1941: 84 [emphasis in original]).

Marx is very specific about what he means by changing the world. In *The German Ideology* (1846) [written jointly with Engels and left unpublished till 1933] Marx made the first clear statement of ‘his materialist conception of history’:

[Since we are dealing with Germans] who are devoid of premises, we must begin by stating the first premise of all human existence and, therefore, of all history, the premise, namely, that men must be in a position to live in order to be able to ‘make history’. But life involves before everything else eating and drinking, a habitation, clothing and many other things. The first historical act is thus the production of the means to satisfy these needs, production of material life itself.

History is nothing but the succession of the separate generations, each of which exploits the materials, the capital funds, the productive forces handed down to it by previous generations…

The ideas of the ruling class are in every epoch the ruling ideas, i.e. the class which is the ruling material force of society, is at the same time its ruling intellectual force. The class which has the means of material production at its disposal, has control at the same time over the means of mental production, so that thereby, generally speaking, the ideas of those who lack the means of mental production are subject to it. (Marx [1846] 1997: 94–118)

The way for the subject ones to get a better deal and thereby to effect social and historical change is through collective revolutionary action. Marx ([1846] 1997: 109–11) suggested that by a ‘united’ stand by a ‘revolutionary class’ the unequal conditions of society could be overturned. ‘Communism differs from all previous movements in that it overturns the basis of all earlier relations of production and intercourse’ (Marx [1846] 1997: 111); and:

things have now come to such a pass that the individuals must appropriate the existing totality of productive forces, not only to achieve self-activity, but also, merely safeguard their very existence. (Marx [1846] 1997: 116)

In the *Manifesto of the Communist Party* (1848) this combative approach is spelled out from the beginning: ‘The history of all hitherto existing society is the history of class struggles’. Significantly for the history of thought Marx and Engels in the vigorous tone which is characteristic of the *Manifesto* counter any criticism levelled at the proposal for the creation of a radical new society—that is, any criticism which is based on religious, philosophical or ideological grounds—by arguing that these ‘are not deserving of serious examination’ (Marx & Engels 1992: 24). They add:

Does it require deep intuition to comprehend that man’s ideas, views and conceptions, in one word, man’s consciousness, changes with every change in the conditions of his material existence, in his social relations and in his social life?
What else does the history of ideas prove, than that intellectual production changes its character in proportion as material production is changed? The ruling ideas of each age have ever been the ideas of its ruling class.

When people speak of ideas that revolutionise society, they do but express the fact, that within the old society, the elements of a new one have been created, and that the dissolution of the old ideas keeps pace with the dissolution of the old conditions of existence. (Marx & Engels 1992: 24)

John Stuart Mill also conceptualised social progress as a process of ‘betterment’ when he wrote in Considerations of Representative Government (1861): ‘When Progress is spoken of as one of the wants of human society, it may be supposed to mean Improvement’ (Mill [1861] 1972: 186). He spoke of it in other places as well. In On Liberty (1859) in particular, a more political and sociological, indeed a rather Spencerian discussion is encountered in which—in the style of many Victorians—he asks whether progress can be achieved by all peoples:

The only unfailing and permanent source of improvement is liberty, since by it there are as many possible independent centres of improvement as there are individuals. The progressive principle, however, in either shape, whether as love of liberty or of improvement is antagonistic to the sway of Custom, involving at least emancipation from the yoke; and the contest between the two constitutes the chief interest of the history of mankind. The greater part of the world has, properly speaking, no history, because the despotism of Custom is complete. This is the case over the whole East. (Mill [1859] 1972: 128)

While Robert Nisbet in his book History and the Idea of Progress (1980: 11) argued that Bury followed the nineteenth century tradition that denied the ancients the ability to hold a concept of history ‘as continuous progress of mankind from past to future’, Bowler ([1983] 1989a: 99) suggests that this position is largely attributable to the establishment in the nineteenth century of a ‘scientific study of human affairs’. This direction was promoted in the first instance by the Marquis de Saint-Simon (1760–1825) and perfected in the work of Auguste Comte (1798–1857) who ‘saw progress as leading to the “final reorganization” of society under the rule of men of science’ (Hildebrand 1949: 360; Mandelbaum 1971: 66–9), the whole springing from the optimistic view inherent in the Condorcet’s treatise posthumously published in 1795.

Condorcet and the Progress of the Human Mind

Esquisse has been described as ‘the paragon of all presentations of ideas on progress’ (Liedman 1994: 692). It is a work which has been described as ‘admirable in its concision and intellectual impact’, one which ‘by both its virtues and defects, lives on today as the final testament to posterity of the Age of Enlightenment’ (Rowe 1984: 27). In Esquisse Condorcet prophesied the coming millennium, a time in which racial and national antagonisms would disappear; the law and public institutions would
identify with the interests of the people; there would be a ‘complete annihilation of the prejudices that have brought about the inequalities of rights between the sexes’; education would be extended to women. Wealth would be more equally distributed, and a universal language established to facilitate the spread of scientific knowledge. There would be improvements in manufactures and in the production of food. As well, ‘The improvement of medical practice’ would lead to the ‘end of infectious and hereditary diseases’ and lead ultimately to the extension of human life, perhaps indefinitely (Condorcet [1795] 1955: 199–200).

This ‘golden age’ of which Condorcet writes is conceived as lying in the near future, a time and place ‘where tyrants and their slaves, priests and their dupes, will have disappeared, and people will behave rationally in the enjoyment of life, liberty, and the pursuit of happiness’ [1795] 1955: 179; Collingwood 1994: 80). The golden age is an Enlightenment paradise, almost ‘too good to be true’. While Condorcet has a good heart and recognises the evils perpetrated by his contemporaries in the pursuit of their interests in the New World, it is by the gifts of the Old World that this New World will itself be made more perfect (Condorcet [1795] 1955: 175–6).

Marie-Jean-Antoine-Nicolas Caritat, Marquis de Condorcet the ‘last of the illustrious line of French philosophes’ was one of the most important thinkers of the Enlightenment in France’ (Goodell 1994: 7). He was ‘[a]t once scion of the nobility and fierce supporter of revolutions, American and French alike’ (Nisbet 1980: 206). He was also a mathematician (particularly in the area of probability theory) social theorist and educational reformer—he proposed a ‘project for national education based on the study of sciences’—as well as a politician (Williams 1953: 312; Gillispie 1962).2 He contributed important works on the nature of voting, education and social evolution (Condorcet & Barraclough 1995: 153).

The *Esquisse* was ‘intended as a preliminary to a much larger study’ for which Condorcet had already prepared notes (Cazes 1976: 49). It was written during the Terror (April 1793–July 1794) while Condorcet, a Girondist who had opposed the execution of Louis XIV was in hiding from Robespierre’s revolutionary police. It was published by his widow Sophie in 1795, after his death in prison of unspecified

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2 The overthrow of the feudal powers of the aristocracy and the church in 1789 resulted in an attempt to create a new secondary school system. Between 1791 and 1794 ‘various educational projects were tried’. Condorcet’s was just one of these. It was ridiculed in the National Assembly as an attempt to foster a new intellectual aristocracy. After the fall of Robespierre in 1795 a new system came into being, the *Ecoles centrales* (the ‘central schools’) which was ‘public, secular, and dedicated to extending scientific method to human and social problems’. In 1802 Napoleon Bonaparte replaced the Ecoles centrales with the lycées ‘which restored several features of the old classical curriculum’ (Staum 1985: 49).
causes. It was immediately influential, and would be commented on, and critically analysed both in France and England.

Condorcet had ‘described the Atlantic community of France, England and the United States—as living in the forefront of world civilisation’ (Manuel 1965: 14). Yet Thomas Malthus (1766–1834), twenty-seven years old in 1793, would ‘dryly’ comment in the opening chapter of the second volume of *An Essay on the Principle of Population as it Affects the Future Improvement of Society with Remarks on the Speculations of Mr Godwin, M. Condorcet and Other Writers* (1798) that Condorcet’s intention in *Esquisse* represented ‘a singular instance of the attachment of a man to principles which every day’s experience was, so fatally for himself, contradicting’ (Malthus 1970: 121; Chandrasekhar 1969).

### A Review of History and Historical Forecasting

The *Esquisse* was a review of history and an exercise in historical forecasting (Cazes 1976). Condorcet posed the question:

> If man can with almost complete assurance, predict phenomena when he knows their laws… why, then, should it be regarded as a fantastic undertaking to sketch, with some pretence to truth, the future destiny of man on the basis of his history? (Condorcet [1795] 1955: 173)

On the basis of this question Condorcet proceeded to sketch an ideal for the future condition of the human race which he subsumed under three important heads: ‘the abolition of inequality between nations, the progress of equality within each nation, and the true perfection of mankind’ (Condorcet [1795] 1955: 173). He drew on the strongly ‘evolutionary’ and developmental exposition of progress developed by the economist Anne Robert Jacques Turgot (1727–81) whose own system was a three-stage one in which every society on earth was located at one of three stages of development as either hunters, shepherds or husbandman [farmers]. A method of division which would later be taken up by Comte in his ‘law of the three stages’ where societies were located successively at the ‘theological-military’, ‘metaphysical-judicial’, and the ‘scientific-industrial’ stage. Condorcet divided history into ten periods of which the tenth lies in the future. The famous ‘Tenth Epoch’ is imbued with an almost utopian if not visionary posture with regard to the role which science and technology is to play in the future of humankind, a future which moves ever forward. Indeed Condorcet regarded science as ‘the golden avenue to the future’ (Nisbet 1980: 208; Bowler [1983] 1989a: 98; Collingwood 1994: 80; Ruse 1996: 24).

Bury (1932: 209) describes Condorcet’s ‘arrangement of the map of history’ as ‘remarkable as an attempt to mark its sections not by great political changes but by
important steps in knowledge’. The first age of primitive society is followed by the pastoral and agricultural age concluding with the invention of alphabetic writing in Greece. The fourth period is marked by the ascendancy of Greek thought and the rise of science to the time of Aristotle. During the fifth period knowledge advances but suffers obscurantism in the time of the Romans, and the sixth age heralds a dark age which continues to the time of the Crusades. Bury (1932) then proceeds to describe Condorcet’s plan which leads inexorably to the glory of the modern age:

The significance of the seventh period is to prepare the human mind for the revolution which would be achieved by the invention of printing, with which the eighth period opens… The scientific revolution effected by Descartes begins a new period, which is now closed by the creation of the French Republic.

The idea of the progress of knowledge had created the idea of social Progress and remained its foundation. It is therefore logical and inevitable that Condorcet should take advance in knowledge as the clew to the march of the human race. (Bury 1932: 209)

A description of Condorcet’s ten stages of historical progress is given in the appendix.

Condorcet believed, unlike Hesiod, that he is living in exceptional indeed glorious times. Especially regarding the development of ideas in the arts and the sciences. This was the subject of his reception speech upon his election to the Académie Française in 1782 (Waldinger 1984). Condorcet took as his theme the ‘union between the sciences and letters exemplified in the scientific popularizations of Fontenelle’ (Baker 1975: 85).

Bernard de Fontenelle: Selling Science

Bernard le Bovier de Fontenelle (1657–1757) scientist and man of letters, may ‘in a sense’ be described as ‘the first of the French philosophes’ (Butterfield 1973: 160). He had been elected to the Académie Française in 1691, and became ‘perpetual secretary to the Académie des Sciences in 1697’ (Encyclopaedia Britannica, 14th edn., s.v. ‘Fontenelle’). He was a worthy forerunner to Condorcet in the quest for a theory of knowledge, one which would later expand to become a general theory of human progress and as the ‘principle agent in the transmission of the results of the scientific movement to the outside world’ (Butterfield 1973: 160; Bury 1932). Along with Charles Perrault (1628–1703)—remembered now as the author of the classic fairy tales, ‘La belle au bois dormant’ (Sleeping Beauty), Le petit chaperon rouge (Little Red Riding Hood), Le Maistre Chat, ou le Chat Botté (Puss in Boots) and Cendrillon, ou la petit pantoufle verre (Cinderella)—Fontenelle was a major combatant in the great
philosophical and literary controversy known to history as the Battle of the Ancients and Moderns.3

This controversy revolved around a comparison between the literary, scientific and philosophic accomplishments of the Greeks and Romans with those of the seventeenth century (Nisbet 1980: 151–6). Essentially, those who supported the ancients emphasized the classical achievements in subjects which today we may call the humanities, arguing that the ‘moderns’ or 17th century progressives could not equal the achievements of their ancient counterparts, particularly in philosophy and literature. ‘The moderns’, on the other hand,

could point to the new discoveries in science: physics, astronomy, natural history, anatomy, physiology, materia medica, and to some degree chemistry. Here, in large part, the ancients had been largely discredited, proven unequivocally wrong in some respects, presumptively wrong in others. In a sense the quarrel was one between the new science and the old humanities. (King 1965: 6)

Voltaire in the Philosophical Dictionary quotes those passages in the Digressions [Vol. 4, 1742 edition] where the ‘ingenious Fontenelle’ presents the argument. However he adds to this his own ingenious and witty gloss by suggesting that environmental factors might be considered as a force in the production of genius; or at least this is one way of reading it. Voltaire cites Fontenelle on this matter:

If the ancients had more intelligence than we have, it is because the brains of those times were better ordered, formed of firmer fibers, filled with more animal spirits; but in what way were the brains of those times better ordered? The trees also would in that case have been bigger and more beautiful; for if nature was then younger and more vigorous, the trees, as well as men’s brains, would have necessarily felt this vigor and this youth. (Voltaire 1742 [1949] 1986: 62)

Voltaire argues that there is more to it than that. Voltaire wants to know not only whether ‘nature has been able to produce in our day as great geniuses and as good works as those of the Greek and Latin antiquity; but to know whether we have them in fact’ (Voltaire 1742 [1949] 1986: 61). By which he means that it is not possible to test the hypothesis. It is not possible to find out if by some chance conditions were such in ancient times that human achievement was encouraged in the direction of greater endowment. ‘Nature is not bizarre’, he argues:

But it is possible that she gave the Athenians a country and sky more suitable than Westphalia and the Limousin for forming certain geniuses. Further, it is possible that the government of Athens, by seconding the climate, put into Demosthenes’ head something that the air of Climart and La Grenouillè and the government of Cardinal de Richelieu did not put into the heads of Omer Talon and Jerome Bignon.

This dispute is therefore a question of fact. Was antiquity more fecund in great monuments of all kinds, up to the time of Plutarch, than modern centuries have been

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3 See Opie & Opie 1974, for a discussion of Perrault’s place in the development of the fairy tale.

He doubts it.

Ultimately after much comparison between the products of modern English and European artistic, architectural and scientific pursuit he criticises the whole debate suggesting that it is perhaps an idle contest little more than an eighteenth century equivalent to Trivial Pursuit:

There are [therefore] spheres in which the moderns are far superior to the ancients, and others, very few in number, in which we are their inferiors. It is to this that the whole dispute is reduced. (Voltaire 1742 [1949] 1986: 65)

The debate nevertheless fulminated and formed the background to most scientific discussions at the time and embroiled intellectuals in both France and England. Jonathan Swift (1667–1745) made use of satire to much affect in the *Battle of the Books* published in 1704; and Voltaire found time to contribute to the debate in a fashion which neatly summarises (using the cyclic notion of human progress) the argument while capturing the sprightly tone of this eighteenth century cause célèbre:

The great dispute among the ancients and moderns is not yet settled; it has been on the table since the silver age succeeded the golden age. Mankind has always maintained that the good old times were much better than the present day. Nestor in the Iliad, wishing to insinuate himself as a wise conciliator into the minds of Achilles and Agamemnon, starts by saying to them—“I lived formally with better men than you; no, I have never seen and I shall never see such great personages as Dryas, Cenaeus, Exadius, Polyphemus, equals to the gods, etc.”

Posterity has avenged Achilles for the poor compliment paid him by Nestor; now vainly praised by those who only praise antiquity. Nobody knows Dryas any longer; we have hardly heard of Exadius, or of Cenaeus; and as for Polyphemus, equal to the gods, he has not too good a reputation, unless the possession of a big eye in one’s forehead, or the eating of men raw, partakes of divinity. (Voltaire 1742 [1949] 1986: 61)

And so on.

Perhaps Fontenelle’s most important ‘rôle’ was as a salesman and ‘propagandist’ for science, and as the first potentially to elevate science to the status of religion, the consequences of which would bear directly on its future role in the history of human development:

For the popularization of science, which was to be one of the features of the nineteenth century, was in fact a condition of the success of the idea of Progress. This idea could not insinuate itself into the public mind and become a living force in civilized societies until the meaning and value of science had been generally grasped, and the results of scientific discovery had been more or less diffused… (Bury 1932: 11)
Popular Scientific Writing

The vehicle for this enterprise was Fontenelle’s writings coupled with his administrative duties as a member and guiding light of the Académie Française (Baker 1975:1–2). Fontenelle had tried his hand at all manner of writing: librettos for opera, plays, critical essays, histories, tragedies and poetry, which was not according to Bury his natural forte. However he possessed remarkable lucidity as a writer of prose, and was able to convey his ideas without recourse to technical language, about the ‘immutable laws of nature’ and the ‘doctrine of the progress of knowledge’ in a such way that made these ideas accessible ‘not only to men of science, but to those of the educated public who possessed some scientific curiosity’ (Bury 1932: 99).

Fontenelle had been required in his capacity as secretary of the Academy to write its history and to compose funeral orations for deceased scientists (including those for Newton and Leibniz). It was in part through these Éloges [song of praise; oration] that Fontenelle both ‘invented and exploited a whole technique of popularisation’ in scientific writing (Butterfield 1973: 160). Being an ‘extremely subtle and diplomatic narrator’ he was able to ‘manage without offence to draw attention to weaknesses of this or that scientist’ while ‘at the same time he seems to have used the orations in order to conduct a kind of scientific propaganda on behalf of the scientific movement’ all the while tactfully challenging prevailing religious prejudice and educational methods (Butterfield 1973: 161). Fontenelle’s activities thus provide an insight into the nature of the process through which scientific ideas were carried beyond the walls of the Academy and demonstrate how clearly this tendency to disseminate and articulate knowledge was part of the new intellectual environment created by the philosophes.

The Encyclopedia: Hymn to the Enlightenment

As Charles Darwin’s grandfather Erasmus Darwin would do when he couched his own evolutionary theory in poetic form ‘Fontenelle clothed science in the language of the humanities, and it was this achievement that won a place for it in the public consciousness’ (Marsak 1959: 45). It was in this intellectual environment that the ‘centrepiece of the French Enlightenment’ the Encyclopédie (or Dictionnaire raisonné des sciences, des arts et des métiers, par une société de gens de lettres) edited by Denis Diderot (1713–84) and Jean D’Alembert (1717–83) was produced (Hamlyn, 1987). Its contributors included Voltaire, Montesquieu and Rousseau, and it became a hymn to the Age of Enlightenment. It was the intention of the authors ‘to collect all the knowledge there was to be gleaned on the earth’s surface, to explain its underlying system to their contemporaries’ and then to pass the collected learning on to the next generation so that they too would grow in knowledge, wisdom and contentment.
(Hazard 1963: 203). Still, the encyclopaedists, unlike the earlier philosophes cared not for comparisons with the old. In *Nouveaux dialogues des morts* (Dialogues with the dead) published in 1683, Fontenelle had ancients in conversation with moderns. The conversations which were modelled on the dialogues of Lucian (c. AD 117–80) presented Socrates in conversation with Montagne, and Descartes with Demetrius, and were deliberately ‘written with a light touch… full of surprises and unexpected turns’ (Bury 1932: 99). In his short pamphlet *Digression sur les anciens et moderns* (Digression on the ancients and moderns, 1688) he continued the theme coming out strongly in favour of the Moderns.

**Conversations on the Plurality of Worlds**

But it is in his most famous work *Entretiens sur la pluralité des mondes* published in 1686 that Fontenelle succeeded in producing what was perhaps the first book—‘at least the first that has any claim to be remembered—in the literature of popular science’ (Bury 1932: 114). In this work a philosopher discusses the new Copernican astronomy with a Marquise in the garden of a country house over five successive moonlit evenings.4

On the first evening the cosmology of Copernicus is introduced as the most likely to be correct and older alternative models of cosmology are discussed. On the second and third evenings the Moon, and the possibility of travel to it is explored. All topics which would have been ‘somewhat familiar to readers in the know already’, and ‘only then, after easing the reader into it does Fontenelle allow himself to cover totally new ground’ (Gelbart 1990: xxi). On the fourth evening Descartes’ theory of vortices as an explanation of planetary motion is explored, and on the fifth and final evening Fontenelle’s philosopher and Marquise:

[Takes] the radical plunge into discussing the fixed stars as suns, around which an infinity of habitable planets probably revolve5 The Milky Way is discussed as a

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4 The Marquise was probably Madame de La Mésangère who read the first draft of *Entretiens*. The choice of a woman as the participant in this exchange of knowledge is important. An interest in science became fashionable in the later years of the reign of Louis xiv, and that interest spread beyond academic circles and into the Salons. ‘Ladies studied mechanics and astronomy’ (Bury 1932: 113). However, women’s efforts at self education was not taken seriously, and was often ridiculed. ‘Moliere’s famous comedy, *Les femmes savantes*, which appeared fourteen years before Fontenelle’s *Entretiens*, mocked the précieuses for seeking to better their understanding, for involving themselves in anything other than trivial, mindless pursuits. This play, in which women were damned if they did think and damned if they did not represented quite accurately the prevailing view of intellectually ambitious women at the time’ (Gelbart 1990: xxvi-xxvii). See also Margaret Alec 1986, *Hypatia’s Heritage: A History of Women in Science from Antiquity to the Late Nineteenth Century* (London: The Women’s Press).

5 In *On Some Thoughts Concerning Education* (1693) John Locke had written, that after a child had become accustomed to arithmetic as the ‘easiest form of abstract reasoning’ and become familiar
“cluster of worlds” [and then] suddenly the universe becomes infinite, teeming with bizarre but intelligent life everywhere. And the reader, lulled by the gradual seduction of earlier more familiar suggestions, does not really experience this news as a shock. (Gelbart 1990: xxii)

Fontenelle (1990: 3–5) stated his aim clearly in the preface to this work. ‘I’ve tried’ he writes,

to treat Philosophy in a very unphilosophical manner; I’ve attempted to bring it to the point where it’s neither to dry for men and women of the world nor too playful for scholars.

He warned those who had some knowledge of physics that he didn’t wish to instruct but only wished to divert them by presenting knowledge in a ‘more agreeable and engaging manner’ and for those who were unfamiliar with the subject he believed that he ‘could instruct and divert all at the same time’ (Fontenelle 1990: 3–5). He continued:

I do not delude myself when I say that I’ve chosen from all of Philosophy the subject most apt to pique curiosity. It seems to me that nothing could be of greater interest to us than to know how this world we inhabit is made, if there are other worlds similar to it, and like it are inhabited too…

Since I had no intention of creating a make-believe system… I’ve employed verifiable physical tenets… But fortunately it happens that on this subject the ideas of physics are pleasing in themselves and, at the same time that they’re satisfying the mind, they provide a spectacle for the imagination…

with the ‘art of numbers’ he could be introduced to Geography and ‘learn of poles, zones, parallel circles, meridians and longitude and latitude and by them made to understand the use of maps, and by the numbers placed on their sides, to know the respective situation of countries and how to find them on the terrestrial globe… Which when he can readily do, he may be entered on the celestial; and there going over all the circles again with more particular observation of the elliptic, or zodiac to fix them all clearly and distinctly in his mind, he may be taught the figure and position of the several constellations, which may be showed him first upon the globe, and then in the heavens.

When this is done… it may be time to give him some notions of this our planetary world… it may not be amiss to take him a draught of the Copernican system, and therein explain to him the situation of the planets, in their respective distances from the sun, the centre of their revolutions. This will prepare him to understand the motion and theory of the planets the most easy and natural way. For since astronomers no longer doubt the motion of the planets about the sun, it is fit he should proceed upon the hypothesis, which is not only simplest and least perplexed for the learner, but also likeliest to be true in itself’ (Locke 1947: 359).

6 The Cartesian theory of vortexes on which his work was based was refuted the next year in Newton’s Principia. However Fontenelle continually ‘updated’ Entretiens making changes as scientific facts changed. For example, in the first edition, on the First Evening, the philosopher and the Marquise discuss the ‘sun at the center of the universe’, the Marquise asking ‘what comes after him?’, and the philosopher answers: ‘“Mercury”’ I said. “It turns around the Sun, so that the Sun is at the center of the circle it makes.” In the 1714 edition Fontenelle changed this to read ‘more or less at the center’ in consideration of Kepler’s theory of elliptical orbits (Hargreaves 1990: 76).

7 According to the Macquarie Dictionary Natural Philosophy is that ‘branch of physical science which treats of those properties and phenomena of bodies which are unaccompanied by an essential change in the bodies themselves, including the sciences classed under physics’. In the seventeenth century astronomy and physics were part of Natural Philosophy.
Although Fontenelle may be regarded as the first in a line of writers of ‘science/speculative fiction’ his work is not ‘speculative fiction’ in the manner of Jules Verne or H. G. Wells (Hargreaves 1990: xlii). However he did prepare the ground for all those nineteenth and twentieth century writers who sought to present scientific ideas to an educated public in a clear and attractive style (Hargreaves 1990).

**Historical Change as Progressive**

Importantly, while introducing new scientific concepts to men and women who were not themselves trained as scientists, Fontenelle introduced the concept of historical change as progressive while at the same time he reinforced the Cartesian philosophy of nature that seeks ‘to explain the origin of all things in physical terms, without reference to supernatural creation’ (Bowler [1983] 1989a: 29). He uses various literary devices like analogy to do so. Often in a very novel way. For instance he allows the philosopher to tell the Marquise:

> The Ancients were children compared to us. If roses, which live but a day, wrote histories and left memoirs for one another, the first would have pictured their gardener in a certain fashion, and after more than fifteen thousand rose generations those who had yet to leave the picture to their descendants would have changed nothing. They would say on the subject, “we’ve always seen the same gardener; in all the memory of roses we’ve seen only him, and he’s always been exactly as he is. Assuredly he doesn’t die like us; he’s changeless.” Would the roses logic be sound? It would actually have more foundation than that of the ancients concerning the celestial bodies, and even though there’d been no change whatever in the skies until today, even though they gave every sign that they were made to last forever without alteration, I wouldn’t believe it yet. I’d wait for a still longer test. (Fontenelle 1990: 71–2)

Having already been convinced by the philosopher’s arguments over the five evenings of their discussions of the changing nature of the universe, the Marquise reflects: ‘I expect that if the ancient stars disappear, new ones take their place. Species must replenish themselves’ (Fontenelle 1990: 72). The philosopher taking up this line of thinking declares: ‘I also believe that the universe could have been made in such a way that it will form new suns from time to time’ (Fontenelle 1990: 72).

This world view is one in which potentially nature is conceived of as having been left unfinished by the Creator. It is implied that if nature is capable of replenishment it is also capable of improvement. In suggesting that the Creator has left the world unfinished and that new worlds may yet arise Fontenelle lays the foundation for a concept of progress that ‘made no attempt to accommodate prevailing theology’ (Hargreaves 1990: xxi).
It may also be noted that whereas in England ‘science had already declared its independence from Church and University, this goal had still to be reached in France’ (Marsak 1959: 39). It was Fontenelle’s great skill to facilitate this change.

**A New Religion**

Paradoxically, Fontenelle and the later *philosophes* including all the popularisers, were engaged in the task of creating a new religion. One which sought to dissociate itself from the preconceptions and superstitions of an earlier era of faith and replace this with an era characterized by a faith of reason; a state of things that inevitably created its own inconsistencies. For as Carl Becker ([1932] 1960: 30–31) has pointed out:

> [T]he *philosophes* ridiculed the idea that the universe had been created in six days, but still believed it to be a beautifully articulated machine designed by a Supreme Being according to a rational plan as an abiding place for mankind. The Garden of Eden was for them a myth… but they looked enviously… across the waters to the unspoiled innocence of an Arcadian civilization that flourished in Pennsylvania. They renounced the authority of the church and Bible, but exhibited a naïve faith in the authority of nature and reason. They scorned metaphysics, but were proud to call themselves philosophers… They courageously discussed atheism, but not before the servants. They defended toleration valiantly, but could with difficulty tolerate priests. They denied that miracles ever happened, but believed in the perfectibility of the human race.

**Voltaire and Candide: All for the best**

The idea of the Garden of Eden was a myth with a useful purpose, for at least one *philosophe*, for Voltaire. Famously in *Candide, ou l’optimisme* (1759, first English translation ‘All for the best’ [1759]), Voltaire set out what has been described as the ‘gold standard’ for the notion of a perfect society; with its reference to the kingdom of Eldorado, deliberately a rather hazily defined ‘location of idealism through which Candide [the protagonist, and his companions] must travel before he can re-engage purposefully with the world as it is’ (Williams 1997). It is not as might appear a treatise on how to ‘look on the bright side of life’. It is rather a satirical assault on Optimism a philosophical system popular in the mid-eighteenth century and associated with the German philosopher Gottfried Leibniz (1646–1716) and others including the poet Alexander Pope. Leibniz in his *Discourse on Metaphysics* (1686) in which he introduced ‘the principle of the best’ and in *Theodicy* (1710) sought to reconcile the existence of evil and human suffering with the existence of a benevolent God, one who (along eighteenth century lines) created the best of all possible worlds after considering all the possible design options (Hamlyn 1987: 161; see Williams 1997 for an analysis of Optimism or ‘The Cruel Philosophy’ [especially Chapters 2 and 3] and its place in the literary structure of *Candide*).
Its meaning has been substantially reduced in the minds of later readers to the well-known lines spoken by Candide’s tutor Dr Pangloss (a philosopher who taught ‘metaphysico-theologo-cosmolonigology’) who ‘proved admirably that there is no affect without a cause and that… since everything is made for one end, everything is necessarily for the best end’ (Voltaire [1949] 1986: 230). Candide was a complex satirical attack on this system of philosophy. Complex in that it was an attack not only on Optimism but also on government, especially autocratic government, on law and on all styles of contemporary story-telling, including ‘utopic and travel literature’ since he was also influenced in his critique by the philosophical optimism expressed in Pope’s Essay on Man which had been translated into French in 1736 (Williams 1997).

Variations upon ‘all is for the best in this world’ appear throughout the work (Voltaire [1949] 1986: 236). However it was a ‘real life’ event which in the first instance enabled Voltaire to write Candide. Voltaire was moved to write Candide three years after the occurrence of one of the most devastating natural disasters in modern times. The Lisbon Earthquake occurred on All Saints’ Day 1 November 1755, and resulted in the deaths of between 30,000 and 40,000 people. The writing of Candide is to be considered in light of the effect of this event on Voltaire’s thinking about God and society, and the direction of this thinking is initially reflected in the poem The Lisbon Earthquake: An Inquiry into the Maxim, ‘Whatever is, is Right’ (1756):

Oh WRETCHED man, earth-fated to be cursed;  
Abyss of plagues, and miseries the worst!  
Horrors of horrors, griefs on griefs must show,  
That man’s the victim of unceasing woe,  
And laments which inspire my strain,  
Prove that philosophy is false and vain.

[lines 1–6]

But when we rise from this accursed abyss,  
Who by his merit can lay claim to bliss?  
Dangers and difficulties man surround,  
Doubts and perplexities his mind confound.  
To nature we apply for truth in vain,  
God should His will to human kind explain.  
He only can illumine the human soul,  
Instruct the wise man, the weak console.  
Without him man of error still the sport,  
Thinks from each broken reed to find support.  
Leibnitz can’t tell me from what secret cause  
In a world governed by the wisest laws,  
Lasting disorders, woes that never end  
With our vain pleasures real sufferings blend;  
I can’t conceive that “what is, ought to be,”  
In this each doctor knows as much as me.

[lines 177–94]

Central to Candide are the travails [including rape and shipwreck] of its protagonists in search of the best of worlds, and in the end they come to the conclusion that ‘we should cultivate our gardens’ and ‘work without theorizing’ since
it is ‘the only way to make life endurable’ (Voltaire [1949] 1986: 327). Leibniz, like Isaac Newton and Condorcet was a mathematician, and in the Leibnizian universe though the world was not a perfect place it was nevertheless ordered in a rational and harmonious way. Dr Pangloss remarks in ironic praise of Leibniz: ‘preestablished harmony is the finest thing imaginable’ (Voltaire [1949] 1986: 322).

Mathematical Techniques and Measurable Properties

The Enlightenment thinkers supported a system of belief that promoted the idea that the ‘application of mathematical techniques—and language—to measurable properties of what the senses revealed’ constituted the ‘sole true method of discovery and exposition’ (Berlin 1956: 15). In this they were largely following the sensationalist philosophy and psychology of Étienne Bonnot de Condillac (1714–80) as well as his philosophy of education. Condorcet ([1795] 1955: 3) echoes Condillac at the very beginning of *Esquisse* which opens with the lines: ‘Man is born with the ability to receive sensations… to attach signs to them all in order to recognize them more easily and to allow for the ready production of new combinations’. In his ‘incomplete and posthumous’ work *La langues des calculs* (The language of calculation, 1798) Condillac:

Having discussed] the ambiguity and mathematical inadequacy of verbal language… noted the need in every science for exactitude similar to that found in mathematics and indicated how analogy might lead the student from the language and method of one science to the language and method of another. (Spengler 1968: 212)

Condillac predicts positivism and nineteenth century efforts to create ‘scientific’ disciplines of fields of intellectual endeavour whose origins lay in the outskirts of religion, medicine and philosophy of which psychology is perhaps the best example.

Seeing themselves as ‘liberated’ by the new scientific methods the *philosophes* set about bringing ‘order and clarity’ to the ‘ancient disciplines of metaphysics, logic, ethics, and all that related to the social life of men’ (Berlin 1956: 15). In doing so, they simultaneously set about mapping a new future for the social sciences, one in which quantification was to play a large and important part:

That the great creative minds of the scientific revolution had left two fundamental tasks to be fulfilled by the eighteenth century. The first of these had been to extend the applications of the scientific method to the whole range of human knowledge… The second had been that of codifying the scientific method itself… as a means of popularizing the scientific manner of looking at things. In fulfilling these essential tasks, Condorcet argued that the eighteenth century had ensured that the truths of the sciences would never be lost. The advance of scientific methods would necessarily keep pace with the expansion of scientific knowledge. Enlightenment would necessarily entail moral improvement. (Baker 1975: 85–6)
This view of science was essentially different from that which would come to prevail in the nineteenth century. Where ‘progress’ in the nineteenth century was equated with the results of scientific activities, in the eighteenth century men like Condorcet and the rest of the *philosophes* ‘were primarily concerned with the moral implications of the scientific enterprise. Their vision of science was essentially that for which Descartes supplied the major impulse: they were interested in science as Method, as a systematic procedure for distinguishing the true from the false’ (Frankel 1948: 153).

**A Science of Humanity**

In unpublished notes for a revised version of his speech [to the Academy] Condorcet set out to demonstrate that progress had been achieved in his time through advances made in the natural sciences. Particularly he argued, in mathematics and mechanics; in dynamics and astronomy; in the study of electricity and optics; in chemistry and physiology and in natural history (Baker 1975: 86). However, in the speech as given to the Academy he was at pains to demonstrate that he believed the future progress of humankind rested on the development of ‘those sciences, almost created in our own day, the object of which is man himself, the direct goal of which is the happiness of man’ (Condorcet cited in Baker 1975: 86). Condorcet proffered that the ‘demonstrable progress of the natural sciences would equally occur in the social sciences if only they would use the same methods as the pure sciences’ and ‘base their conclusions on the observation of facts, and acquire an equally precise vocabulary’ (Waldinger 1984: 117). This view of a possible program for a science of humanity is essentially utilitarian and is echoed in the *Esquisse* when Condorcet ([1795] 1955: 190) states that:

> The application of the calculus of combinations and probabilities to these sciences promises even greater improvement, since it is the only way of achieving results of an almost mathematical exactitude and of assessing the degree of their probability or likelihood.

A passage which suggests the future impact and further development of what had up till this time been known as ‘political arithmetic’ and the consequent development and application in the nineteenth century of the so-called ‘science’ of statistics.

**The Concept of Probability**

It should be remembered that Condorcet made a number of contributions to the history of probability theory. In his unfinished essay *Tableau générale de la science, qui a pour objet l’application du calcul aux sciences politiques et morales* (General view of science that has for its objective the application of calculus to the moral and political
he ‘set forth the principles and methods… of the science of social mathematics’ (Baker 1975: 332). In the often cited yet historically neglected Essai sur l’application de l’analyse à la probabilitié des décisions rendues à la pluralité des voix (Essay on the application of analysis to the probability of majority decisions, 1785) Condorcet also set out his ‘theory of voting’ in which his objective was to ascertain the degree to which the majority decision of a collective is true. He assumed ‘that the question being voted on has a true solution that is independent of the wishes of those voting and that these voters express in their individual choices their greater or lesser understanding of that truth’ (Granger cited in Sills 1968: 214). Condorcet ‘valued’ this work ‘more highly than any other of his scientific writings as establishing the truth of the contention that moral and political sciences are susceptible of mathematical treatment’ (Baker 1975: 81). Goodell (1994: 162–3) argues:

There is an interesting connecting link between Condorcet’s essays dealing with the subject of probabilities, written before the French Revolution, and his final work, the Sketch, written while he was in hiding… Newton and Locke had bequeathed as their legacy strong arguments for the power of reason and its ability to reveal the laws that govern the operations of the universe. Condorcet was persuaded that if reason can determine the laws that govern the physical, it can also determine, albeit with less exactitude, the laws that govern mankind’s social relations… Implicit in his concept of probability is the idea of predictability. That is the premise of the Sketch—that based on a review of the history of human development, one can, with reason, predict the future course of human history.

This focus on precise measurement and on their application is in keeping with trends that emerged in the wake of French Revolution. Kilborne (1982: 75) writes that ‘Revolutionary ideals of human nature were seen to be deeply opposed to abstract physical sciences’, the type of science which had been associated with the old aristocracy.

[T]he Idéologues, [he continues] referred to themselves as applied Encyclopedists. For not only was science conceived as an essentially human concern dealing with human beings, but because of its humanistic mold, it was believed to be capable of changing men. By contrast the exact sciences [like physics] existed independent of human will. (Kilborne 1982: 75 [emphasis added])

8 Todhunter wrote in his History of the great complexity of Condorcet’s work, describing it as ‘excessively difficult’ for the ordinary reader. Condorcet’s aim was to show that probability ‘was consistent with ordinary notions; or in other words, that the mathematical measure of probability is an accurate measure or degree of belief’ (Todhunter 1865: 352).
Increasingly the focus in all matters relating to the study of humanity was based upon ‘observation and comparison as the basis of knowledge’ (Kilborne, 1982: 75). The essence and the tone is captured in Pope’s famous lines from *An Essay on Man* (1730–44) which had so influenced Voltaire:

> Know then thyself, presume not God to scan;  
> The proper study of Mankind is Man.  
> [Epistle 2, lines 1-2]

This ‘Stoic vein’ was a characteristic of what could be described as the first anthropological society in Europe: *la Société des observateurs de l’homme* (1799–1805). The *Société* was the creation of Louis François Jauffret (1770–1850) a ‘minor’ man of letters whose works included a number of books on natural history and geography aimed primarily at young people for whom he also organized nature walks into the countryside around Paris. The motto Jauffret chose for the *Société* was ‘Know Thyself’ (Connais-toi toi-même) was a phrase which reflected the general inquiring and humanistic interests of the membership (Kilborne 1982: 75–8).

[The] subject matter of the Observateurs was an undifferentiated anthropology of the broadest scope. It included observations on government, religion, language, customs, material culture, social and individual psychology, and, although among Observateurs this interest seems in practice to have been subordinate, the physical characteristics of man. (Stocking 1968: 17)

**Relations of the Physical and Moral in Man**

The *Société* met in Auteuil at the Salon of Mme Anne-Catherine Helvétius (1719–1800) the widow of the philosopher and educational reformer Claude-Adrien Helvétius (1715–71). Its membership was quite broad and included ‘approximately five doctors, fourteen naturalists, three lawyers and four voyagers… The tone of the Société was accordingly set by the profession the most heavily represented: naturalists’ (Kilborne 1982: 79). Prominent among this group of intellectuals were the physician and philosopher Pierre Jean Georges Cabanis (1757–1808) author of *Rapports du physique et du moral de l’homme* (Relations of the physical and moral in man, 1802); the psychiatrist Phillipe Pinel (1745–1826), ‘who, in 1801, presented the first clear modern exposition of non-intellectual insanity or as he called it, manie sans délire’ (Carlson & Dain 1962: 132) and the naturalist and evolutionist Jean Baptiste Antoine de Lamarck (1744–1829) best remembered for the idea:

That somatic modifications resulting from an organism’s development may be passed on to that organism’s offspring under appropriate conditions… the idea that has come to be known as the “inheritance of acquired characters”. (Burkhardt 1977: 1)
Condorcet was part of this circle.

Cabanis was professor of ‘hygiène’ at the École centrales in Paris and taught a class in moral sciences. ‘For Cabanis the goal of knowledge was to decipher appearances and discern utility’ (Kilborne 1982: 80). In Rapports he set out to confront ‘all the dilemmas of the philosophes—man’s place in nature, uniformity and diversity of human behaviour, and the relative influence of the physical and cultural environments’ (Staum 1974: 135).

Cabanis believed as did Condorcet that ‘the empirical sciences, especially medicine, might continue to promote social progress’ (Richards 1982: 249). Further:

Cabanis’ program for the moral use of medicine was based on his belief that ideas, from the most speculative to those guiding practice, were products of sensibility, and thus subject to all the physical influences that operate on the external and internal organs of sense. Medicine then, might aspire to “perfect human nature generally”. (Richards 1982: 249 [emphasis added])

By ‘sensibility’ was meant [the Condollacian idea] that everything we know comes to us through our senses. The major thesis of Rapports was that human behaviour was determined by physical constitution and that this was subject to the effects of age, sex, temperament, health, regimen, and climate.

Cabanis also supported the ‘mechanistic’ notion that the living being was an organization of physical forces which it was the physician/physiologist’s task to understand and reorganize in a desirable direction. This was somewhat in line with the idea proposed by the materialist philosopher Jullien Offray de La Mettrie (1709–51) that ‘the human body is a machine which winds its own springs’ (Staum 1974: 137). Cabanis illustrated his ideas with the colourful metaphor that just like the stomach takes in food and alters it the ‘brain after a fashion… digests impressions’ and ‘organically performs the secretion of thought’ (Cabanis cited in Staum 1980; Richards 1982). Cabanis regarded the brain as a specialized organ rather than the seat of the soul. At the same time there was present in his philosophy and medicine a strong vitalist sentiment that advocated the existence of a ‘non-corporeal’ ‘unknowable’ force.

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9 Julien Offrie de La Mettrie (1707–51), French doctor and philosopher. Author of *L’homme machine* (Man the machine, 1748). Held that the soul is merely an attribute of the body; that it is matter and as such is similarly governed by internal and external conditions. There is nothing to ‘differentiate humans from the mechanical character of all living things’ [including plants]. ‘Thought is merely a property of organic matter, like electricity, or the faculty of motion’ (Hazard 1946: 124).
that could act upon and influence the body in various ways, making Cabanis in effect one of the founders of psychosomatic medicine (Staum 1980).

**A Socially Desirable Temperament**

This emphasis led Cabanis to regard a socially desirable temperament as one which was a product of mental and physical equilibrium.

A “well-tempered” individual was one in whom sensitive and motive forces would be perfectly balanced and in whom stable equilibrium of centers of sensitivity and of bodily functions would guarantee physical and mental well-being. (Staum 1980: 233)

A focus similar to that endorsed by the nineteenth century phrenologists who believed in the ‘education of the faculties’.

An individual’s inherent faculties were clear for all to see and incapable of being altered; yet he could, by “exercising” his intellectual and moral organs, effect a change in his behaviour’ [in a desirable direction]. (Parsinnen 1974: 5)

De Giustino (1975) reckons that phrenologists in the nineteenth century were still imbued with Enlightenment optimism about the human capacity for both physical and mental improvement. He asserts that it was the objective of phrenologists to sort out ‘viciously disposed’ individuals from the rest:

The objective was not the emergence, at some distant date, of a class of cerebral supermen, because that degree of perfection implied an end to man’s evolution as a material creature. Phrenologists had no such end in sight. They doubted that either the human body or the human brain would ever reach a final stage of development. But superior sentiments could [now] be identified in the mind, and once possessed of self-knowledge the individual might take greater care in checking some impulses and encouraging others. This is what phrenologists meant by the “capacity for improvement”: a sense of control, however slight and varying among persons, over the formation of ideas and attitudes. (de Giustino 1975: 139)

This was a philosophy which during the nineteenth century proved particularly attractive to some prison administrators, including those like Alexander Maconochie (1787–1860) who acted as overseers of such distant prisons as that on Norfolk Island (de Giustino 1972: 445, 456–61).

While Cabanis recognized that the ‘ideal did not exist’ because the environment continually impinged on both physical and psychic aspects of the organism, he believed optimistically that through modification of the environment improvements could be made. Following in the tradition of Hippocrates’ *Airs, Waters, Places*, Cabanis placed much emphasis on the role of climate as an influence on human life, and even on racial development. Indeed, the idea that the races were the product of the
exigencies of environmental conditions was one of the ‘best elaborated’ positions on socio-cultural evolution of the Enlightenment (Harris 1968).

A poor regimen, ‘poor food, disease, and other pathogenic influences’ was also held as an explanation for differences between and deterioration within the racial stock.

Georges Leclerc Buffon (1707–88) (cited in Harris 1968: 85) in his *Histoire naturelle* (Natural history, 1749–67)—a major biological text of the time—wrote that the races were not ‘essentially different from each other’ and:

> Who after multiplying and spreading over the whole surface of the earth have undergone various changes by the influence of climate, food, mode of living, epidemic diseases, and the mixture of dissimilar individuals; that, at first these changes were not so conspicuous, and produced only individual varieties; that these varieties become afterward specific... more strongly marked and more permanent, by the continual action of the same causes; that they are transmitted from generation to generation, as deformities or disease pass from parents to children; and that lastly, as they were originally produced by a train of external and accidental causes, and have been perpetuated by time and constant operation of these causes, it is probable that they will gradually disappear...

By extending this point of view of the development of human beings to the practical task of advancing human well-being, such improvements as could be made had to take into account the dual influence of climate and inheritability. Cabanis as a hygienist largely advocated a system of physical education through which:

> he hoped to affect “ideas and passions” by showing that sound physical habits modify the state of the brain, nervous system, and internal organs. In modern terms he was interested in individual hygiene and, assuming the inheritability of improvements, the biological evolution of the species. (Staum 1980: 173)

Following the lead of his colleague Lamarck:

> Cabanis assumed that there was sufficient evidence to prove the inheritance of acquired characteristics. He cited observations by the naturalist Charles-George Leroy of untrained offspring of trained female hunting dogs who would often point in the presence of game. (Staum 1980: 224)

At the same time:

> The last decade of the Ancien Regime also saw a proliferation of government and private initiatives in favour of the applied sciences, particularly disciplines with the potential for developing farming and husbandry. There was much discussion on how to adapt to French farms the raising of wool or meat-producing animals imported from European and non-European countries. Another favorite topic was the improvement of sheep, cattle, and horse breed. (Corsi 1988: 3)

In this context applying the ‘stock-breeding’ analogy in the sphere of human biological development did not seem unreasonable. Why, Cabanis asked, did human society neglect the development of its own perfection while giving so much attention to plant and animal breeding? “Was it more essential to have peaches agreeably fragrant

**Human Perfection through Biological Intervention**

The development of human perfection through biological manipulation was thus a social imperative and a real possibility; one which Condorcet in *Esquisse* projected into future in the ‘medical and hygienic utopia’ of the ‘Tenth Epoch’ (Staum 1989: 209). Condorcet argued that it would be possible to manipulate the human organism in the same manner as is already the practise in animal husbandry. Moreover, foreseeing that medical science and in particular, ‘preventative medicine’ will both ameliorate and improve the physical condition of the human species he asks:

> Would it be absurd then to suppose that this perfection of the human species might be capable of indefinite progress… and that ultimately the average span between birth and decay will have no assignable value? (Condorcet [1795] 1955: 199–200)

He ponders the possibility of an ‘indefinite’ existence and speculates ‘whether the general laws of nature have determined such a limit or not’ (Condorcet [1795] 1955: 201). He also marries the hope for the physical improvement of the human race to the hope for an intellectual and moral improvement in the species:

> But are not our physical faculties… to be numbered among the qualities whose perfection in the individual may be transmitted? Observations of the various breeds of domestic animals inclines us to believe that they are… Finally may we not extend such hopes to the intellectual and moral faculties? May not our parents, who transmit to us the benefits or disadvantages of their constitution… hand on to us also that part of the physical organization which determines the intellect, the power of the brain, the ardour of the soul or the moral sensibility? Is it not probable that education, in perfecting these qualities, will at the same time influence modify and perfect the organization itself? Analogy, investigation of the human faculties and the study of certain facts, all seem to give boundaries to our hopes. (Condorcet [1795] 1955: 200–1)

**Perfecting the Human Species**

Condorcet (1955: 201) agrees that ‘physical faculties, dexterity and acuteness of our senses… may be transmitted’. He also holds out a hope that scientists will be able to make a worldwide survey and attempt a systematic correlation of the influence of climate, soil, diet, habits, occupations, and social institutions on fertility, marriage rate, life expectancy, height, physical strength, mental attributes, character and behaviour (Staum 1980: 209).

They might also construct a system of classification to determine the mutual relationship of variables. He also suggests that governments collect such statistical data on the physical and mental attributes of citizens with a view to designing programs for
‘perfecting the human species’. Since physical weakness and mental debility might be related, a therapeutic regimen of physical exercise supplemented by pedagogy and philosophical instruction could be implemented to modify intelligence and character (Staum 1980: 209).

Though such a program only hints at the possibility of a formal statistical science of heredity, the intimation is there, as is the intimation of other disciplines like anthropology, sociology and psychology. But as Comte pointed out in *Cours de philosophie positive* (Course in positive philosophy, 1830–42) Condorcet’s project for a scientific conception of the social progression of the race was hampered by ‘a great deficiency in the imperfect state of biological knowledge’ (Comte 1830–42: 59).

Having praised the ‘immortal’ introductory pages of *Esquisse* where Condorcet had set out his plan to treat the study of society in a scientific manner, Comte rather felt that the whole had not lived up to its intention and promise. Although Comte himself would retain elements of Condorcet’s account of human progress to inform his own system of sociology, he would stress the ‘movement of ideas’ as did Condorcet. He would retain the emphasis on science as an ‘intellectual taking-off point’ for human progress, as did Condorcet; and, he would also come to utilize that same passionate faith in science as the mechanism through which the ‘good society’ would be achieved (Turner, Beeghley & Powers 1989). Nevertheless, Comte (1830–42: 58–9) argued that Condorcet had eventually ‘lost himself in wanderings after an indefinite perfectibility, and chimerical and absurd anticipations’. Thomas Malthus agreed. The idea as held by optimists like Condorcet in France, and Malthus’s fellow countryman William Godwin (1756–1836) in England, that human beings could transcend both inorganic and organic nature as well as their passions through reason seemed to be so unrealistic a hope, such a denial of the realities of everyday human existence (one of the themes of Voltaire’s *Candide*), that it provided the spur for the writing of *An Essay on Population* (1798). Like Fontenelle’s philosopher, who wanted a lot more evidence before he could sanction the notion of a changeless natural order, Malthus wanted a lot more evidence that human life could be perfected and prolonged indefinitely through the kind of environmental intervention advocated in *Esquisse*. ‘The average duration of human life’ wrote Malthus,

will to a certain degree, vary from healthy or unhealthy climates, from wholesome or unwholesome food, from virtuous or vicious manners, and other causes; but it may be fairly doubted whether there has been really the smallest perceptible advance in the natural duration of human life since first we had any authentic history of man. (Malthus 1970: 126)
Malthus (1970: 125) held that Condorcet’s premise was both ‘unphilosophical’ and ‘totally unwarranted by appearances’. It was also unscientific and rested on a ‘sandy foundation’:

because the limit of human existence is undefined, because you cannot mark its precise term, and say so far exactly shall it go, and no farther, therefore its extent may increase for ever, and be properly termed indefinite or unlimited. (Malthus 1970: 127)

He went on to point out through explication and analysis ‘the fallacy and absurdity of this argument’, by drawing attention to what Condorcet called the ‘organic perfectibility or degeneration of plants and animals, [which] he says, may be regarded as one of the general laws of nature’ (Malthus 1970: 127). Once again the stock-breeding analogy is used:

I am told that it is a maxim among some improvers of cattle that you may breed to any degree of nicety you please; and they found this maxim upon another, which is, that some of the offspring will possess the desirable qualities of the parents in a greater degree. In the famous Leicestershire breed of sheep, the object is to procure them with small heads and small legs. Proceeding upon these breeding maxims, it is evident that we might go on, till heads and legs were evanescent qualities; but this is so palpable an absurdity, that we may be quite sure the premises are not just, and there really is a limit, though we cannot see it, or say exactly where it is. In this case, the point of the greatest degree of improvement, or the smallest size of the head and legs, may be said to be undefined; but this is very different from unlimited, or definite, in M. Condorcet’s acceptation of the term. Though I may not be able in the present to mark the limit at which further improvement will stop, I can very easily mention a point at which it will not arrive. I should not scruple to assert, that were the breeding to continue forever, the heads and legs of these sheep would never be so small as the head and legs of a rat.

It cannot be true, therefore, that among animals, some of the offspring will possess the desirable qualities of the parents in a greater degree; or that animals are indefinitely perfectible. (Malthus 1970: 127–8)

Having already put forward the suggestion that human society is governed by an interrelationship between biological, environmental, and social factors in his famous statement, that population when unchecked increases in a geometrical ratio while subsistence increases only in an arithmetical ratio; having further asserted that population only increases to the limit of its subsistence and that these limits were maintained by the positive influence of war, famine, disease, misery and vice, Malthus introduced the idea that human society is in a constant ‘struggle’ to survive within the limitations placed upon it by the urgency of this ‘natural law’. Thus Malthus may be regarded ‘as the source of the view of nature which led to Social Darwinism’ (Young 1969: 111–12).
Although he considered that the ‘foundations… on which arguments for the organic perfectibility of man rest are unusually weak, and can only be considered as mere conjecture’, he supported the notion that it might be possible:

that by an attention to breed, a certain degree of improvement similar to that among animals, might take place among men. Whether intellect could be communicated may be a matter of doubt; but size, strength, beauty, complexion, and, perhaps even longevity, are in a degree transmissible. The error does not lie in supposing a small degree of improvement possible, but in not discriminating between a small improvement, the limit of which is undefined and an improvement really unlimited. As the human race, however, could not be improved in this way without condemning all the bad specimens to celibacy, it is not probable that an attention to breed should ever become general; indeed I know of no well-directed attempts of this kind, except in the ancient family of the Bickerstaffs, who are said to have been very successful in whitening the skins and increasing the height of their race by prudent marriages, particularly by that very judicious cross with Maud the milkmaid, by which some capital defects in the constitutions of the family were corrected. (Malthus 1970: 129–30)

This point of view could be countered, as it was in 1820 by the political novelist William Godwin (1756–1836):

For twenty years the heart of man in this island has been hardening through the theories of Mr Malthus. What permanent effect this may have upon the English character I know not: but I am sure it was high time that it should be stopped. We were learning… to look askance and with a suspicious eye upon a human being, particularly on a little child. A woman walking the streets in a state of pregnancy, was an unavoidable subject of alarm. A man, who was the father of a numerous family, if in the lower orders of society, was the subject of our anger. We could not look at a human being… as a delicious subject of contemplation… We were learning fast to calumniate the system of the universe, and to believe that the first duty it required of us was to prevent too many human beings (that last work of God, that sole ornament and true consummation of the orb we dwell in) from being born into the world.

The great tendency and effect of Mr. Malthus’s book were to warn us against making mankind happy. (Godwin [1820] 1964: 111)

Nevertheless, the possibility of correcting the constitution of families and even whole nations would become a concern to many individuals and groups in the years that were to follow. Efforts would be made to ascertain the degree to which ‘perfectibility’ broadly-speaking could be defined and attained. The task would fall to those who believed as had the members of the Société des observateurs de l’homme that science and morality are the ‘handmaidens of human welfare and progress’ (Kilborne 1982: 78).

At both an emotional and cognitive level the task would be claimed by those who thought it their intellectual prerogative to do so. Claimed by philosophers, anthropologists and educators, doctors and psychologists; in particular by all those—both in an ancient professional discipline like medicine and in as yet inchoate disciplines with permeable boundaries like anthropology, sociology and psychology—
all those who sought to use the instruments and methods of science to study the physical attributes and mental capacities of human beings.

From the perspective of the frame of reference adopted by these undeveloped disciplines, disciplines which were in a state of transformation, particular ideas about human welfare and progress were likely to be subject to a similar process of speculative flexibility. The available parameters for ascertaining the nature of human physiological development and social change as demonstrated by the attitudes of Condorcet and Malthus are always to be limited by the milieu out of which the observation is made.

Condorcet’s speculation on the perfectibility of the human race through the intervention of science and technology was built on a dialogue around this subject going back through the philosophes connected with the Académie Française to the ancient Greeks. This idea which is part of that ‘complex of ideas’ connected with biological and social evolution, was subject to the attention of friends and colleagues within the Société des observateurs de l’homme who all shared a common belief in the rightness of the advancement of human society through the acquisition of knowledge. However, the idea itself was not a stationary one as no idea as part of a complex of ideas can be stationary. It was ‘not yet determinate’ (Husserl [1913] 1958: 197) and as a field of endeavour shifted and was modified by the distinctive attention paid to it by naturalists, biologists, hygienists and anthropologists in the century to come. With members of each disciplinary field bringing a new point of view to the complex conceptualization of that change. Its nature and limits would to be dictated by an as yet incomplete set of rules for measuring change and determining the typical from the atypical, particularly as this concerned the human organism. The means to achieve this ability to measure the parameters and limits of variability would be the task, as Condorcet had suggested, of mathematics and particularly of the new ‘science’ of statistics which at that point had been developing as a tool for social and demographic analysis. At the same time there were those who observed the manifestation of change from outside the sphere of newly developing scientific trends. Social-critics such as Thomas Carlyle who sought through historical writing particularly his French Revolution (1837) to understand the phenomenology of revolutionary change as it affected nations as a whole and who sought to capture the nature, the emotional ‘feel’ and the ‘affective’ ramifications of disruptive social change, and who through his critical essays sought to comment upon and even challenge the new reliance on and belief in mechanization and technological improvement as a means through which change was regarded as a marker of progress.
Chapter 4

All by Rule and Calculated Contrivance

About the grand course of Providence, and his final Purposes with us, we can know nothing, or almost nothing: man begins in darkness, ends in darkness; mystery is everywhere around us and in us, under our feet, among our hands. Nevertheless so much has become evident to everyone, that this wondrous Mankind is advancing somewhither; that at least all human things are, have been and forever will be, in Movement and Change:—as, indeed, for beings that exist in Time, by virtue of Time, and are made of Time, might have been long since understood. In some provinces, it is true, as in Experimental Science, this discovery is an old one; but in most others it belongs wholly to these latter days.

—THOMAS CARLYLE, Characteristics (1831) p. 379

Focus of Chapter

The focus in this chapter is on the influence of technology as a modernising force in the progress of society in the work of the English essayist and historian Thomas Carlyle (1795–1881). A link is made between the memory of the French Revolution and the affect this had on Carlyle who saw in this event a symbol for all disruptive change, political and sociological. This event was vividly employed by other writers such as Charles Dickens, and well illustrates E. H. Carr’s ([1961] 1990: 31) statement that ‘society and the individual are inseparable; they are necessary and complimentary to each other, not opposites’. Also in the dynamic sense of a Lovejovian analysis, Carlyle’s historical writing in response to the French Revolution raises the question of whether that historical work constitutes historical writing as such writing is commonly understood. Is it not rather an emotional (intra-psychic) response by Carlyle to current external events? A response mainly to the effects of social changes taking place in England during the 1830s. With all the emphasis and perturbation directed at the changes brought by the broadly defined ‘experimental sciences’ which, according to the recollection of Charles Darwin, Carlyle despised (Darwin [1876] cited in Darwin [1888] 1969: 78).

The contribution made by such experimenters, particularly by the much maligned European and British phrenologists and to a lesser extent physiognomists is also examined with the phrenological movement shown to be a major force for the transmission of a scientific way of thinking among what Lovejoy (1936: 19) called
‘the stock of many minds’. The first mass movement in popular science phrenology stimulated the advancement of socially improving activities such as adult education, the public lecture forum and a popular literature available to everybody. This chapter shows the way in which the history of ideas can be used to demonstrate how ‘new… intellectual fashions are introduced and diffused, to help to elucidate the psychological character of the processes by which changes in the vogue and influence of ideas come about’ (Lovejoy 1936: 20). Particularly it demonstrates the process through which:

A mood of thought… first makes its appearance upon the scene in one of the conventionally distinguished provinces of history (most often, perhaps, in philosophy)… and frequently does cross over into a dozen others. (Lovejoy 1940: 4)

In this case the mood of thought from the philosophical sphere of such scientific activities as phrenology, anthropology, sociology, psychology and its ancillary activities of anthropometry and statistics is shown to have a relationship to the future work of Francis Galton [see Chapter 5] and his contribution to the development of the arrangement of a normative criteria for the evaluation of human intelligence and ‘individual differences’.

The French Revolution

On Saturday 30 April 1859 appeared the first edition of a weekly magazine called All the Year Round. The significance of this is that the publisher was Charles Dickens (1812–70) and this edition contained the first instalment of A Tale of Two Cities, a story of the French Revolution.1 The first book ‘Recalled to life’ opens with the well known lines:

It was the best of times, it was the worst of times, it was the age of wisdom, it was the age of foolishness, it was the epoch of belief, it was the epoch of incredulity, it was the season of Light, it was the season of Darkness, it was the spring of hope, it was the winter of despair, we had everything before us, we had nothing before us, we were all going to Heaven, we were all going direct the other way—in short, the period was so far like the present period, that some of its noisiest authorities insisted on its being received, for good or evil, in the superlative degree of comparison only.

There were a king with a large jaw and a queen with a plain face, on the throne of England; there were a king with a large jaw and a queen with fair face, on the throne of France.2 In both countries it was clearer than crystal to the lords of the State preserves of loaves and fishes, that things in general were settled forever.

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1 All Dickens’s novels appeared first in monthly or weekly parts or as serials in monthly or weekly magazines followed by publication of a full volume usually in three ‘books’. The year 1859 also saw the publication of Darwin’s On the Origin of Species, John Stuart Mill’s On Liberty and Samuel Smiles’s Self-Help.

2 George 111 of England (1738–1820) and Queen Charlotte Sophia (1744–1818); Louis XIV of France 1754–93 and Queen Marie Antoinette (1755–93).
This quotation resplendent with contrast may not appear directly relevant to the discussion in this thesis. It may also seem to reflect an unaccountable leap in time from one century to another. It is nevertheless worth looking at as a guide to a number of themes relevant to the ‘spirit’ of the nineteenth century.

For the balancing of London and Paris, and their different ways of life and of politics, is not all the title suggests. It suggests the basic dichotomy on which the novel rests: the choice between changing society and changing ourselves; the gulf between revolutionary ideals and revolutionary methods. (Woodcock 1979: 14)

It is also the story of people: of Charles Darney, Sydney Carton, Lucy Manette and her father Dr Manette, of individuals caught up in a period of tremendous social upheaval, a period of ‘revolutionary’ change implicitly like Dicken’s own time.

Dickens had been much influenced in the writing of A Tale of Two Cities by his familiarity with the topical and historical writings of Carlyle and particularly by ‘the philosophy of Mr Carlyle’s wonderful book’ The French Revolution: A history (1837) (Woodcock 1979: 12; Dickens 1859); a book which John Stuart Mill recommended to Auguste Comte as ‘noteworthy for its truly epic genius… in spite of its most eccentric style’ (Mill to Comte, 15 December 1842, cited in Haac 1995: 121).

Before looking more closely at the possible meaning embedded in the antithetical statements of Dicken’s opening lines, it is worthwhile to look more closely at the Carlyean vision of social progress and ‘history’. It is also useful to examine some tendencies in the arts and sciences that manifested themselves in this period and also to analyse the meaning the word ‘revolution’ which is so significant for an understanding of the development of the arts and sciences in the nineteenth century.

Revolution is defined in the Australian Macquarie Dictionary as ‘a complete overthrow of an established government or political system’. This definition with its element of gross upheaval is the popularly understood meaning of the term. Revolution is also defined as a ‘procedure or course as if in a circuit, as back to a starting point in time’. This gets closer to the original astronomical meaning of the term derived from the Latin revolutio, to revolve. This was the meaning it was given by Dr Johnson in his Dictionary of 1775. For this reason the English Civil War of 1649 was called the great rebellion, but the Restoraton of the Stuart King Charles 11 was referred to as the revolution of 1660 because it marked the return of the monarchical system after the Interregnum of Oliver Cromwell. The ‘Glorious Revolution’ of 1688, which saw the expulsion of the Charles in favour of William and Mary:

far from being a change in political direction, was in fact, a restoration of ancient liberties threatened by the tyrannical actions of James. Whatever, may have been the intentions of some of those who took the famous Tennis Court Oath in Paris in
1789… there was by 1795 no way in which either French participators or English observers could pretend that what was in progress was a “restoration” of anything. The word “revolution” had acquired its new meaning of a clean break with the immediate political past. The nature and language of political debate had been irrevocably altered all over Europe. (Prickett 1989: 2)

Thus is born the popularly understood notion that ‘revolution’ implies a breaking out of old patterns and of perceiving the world and indeed of being in the world in new ways. Robert Southey (1774–1843) conveyed this sense when he wrote that:

Few persons but those who have lived in it can conceive or comprehend what the memory of the French Revolution was, nor what a visionary world seemed to open upon those who were just entering it. Old things seemed passing away, nothing was dreamt of but the regeneration of the human race. (Southey cited in Prickett 1989: 134)

Again, the idea of progress and a hope for the possible perfectibility of the human race is stated.

The French Revolution was the dominant historical event which overshadowed nineteenth-century Europe informing its politics and its political rhetoric and dictating much of the nature of its conservatism and its radicalism and its adherence to the idea of progress. The personalities and the events of the Revolutionary period remained familiar to Victorian Englishman through the publication of the memoirs, letters and observations of eye-witnesses, participants and victims alike. (Sanders 1989: 3)

Carlyle ([1837] 1896: 1) described the French Revolution as:

the event of these modern ages… A huge explosion, bursting through all formulas and customs; confounding into wreck and chaos the ordered arrangements of earthly life; blotting out, one may say, the firmament and skyey loadstars…

The reasons for and affects of the Revolution and its aftermath engulfed the imagination. Long after the ‘onlookers’ had ‘played their part, were it with printing press or with the battle cannon’, and the event ‘had receded to the distance of some half-century’ and ‘the explosion’ had become:

a thing visible, surveyable: we see… its flame and sulphur-smoke blend with the clear air (far under the stars); and hear its uproar as part of the sick noise of life,—loud, indeed, yet embosomed to as all noise is in the infinite of silence. (Carlyle [1837] 1896: 1–2)

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3 The Tennis Court Oath refers to the oath taken on 20 June 1789 by the Third Estate in the Tennis Court at Versailles. The Third Estate represented the Commons, and along with the clergy and nobility made up the Estates General at the time of the Revolution. The oath: never to separate, to meet whenever circumstances made it necessary until the constitution had been firmly established, was made on the occasion of their exclusion, by Louis XVI from their assembly hall forcing them to adjourn in the neighbouring building; heralding another step toward revolution.
Begetting a New World

Change is a principle theme of Carlyle’s work as a writer and historian. The French Revolution and other works, principally Sartor Resartus are marked by ‘the depiction of dislocation and upheaval, of man’s bewilderment in a world from which all the old hierarchy and guideposts have disappeared’ and where ‘Change appears not so much as organic growth but as disruptive action begetting a new world that is basically characterized by fluidity of change, the loss of social institutions, and a bewildering complex of multiple and ever-shifting points of view’ (LaValley 1986: 132). The ‘terror of the new’ is symbolised for Carlyle in the fall of the Bastille: ‘What a Paris, when darkness fell!’:

A European metropolitan City hurled suddenly forth from its old combinations and arrangements; to crash tumultuously together, seeking new. Use and wont will now no longer direct any man; each man, with what originality he has must begin thinking; or following those that think. Seven hundred thousand individuals, on the sudden, find all their old paths, old ways of acting and deciding, vanish from under their feet. And so there go they, with clangour and terror, they know not as yet whether running, swimming, or flying,—headlong into the New Era. (Carlyle [1837] 1934: 142)

As a metaphor for change the Revolution encapsulated all that was potentially unsettling even frightening about the new age. What is so striking is how deeply felt was this revolution as Carlyle experienced it. And Carlyle laboured the intensity of the emotion called forth by this great event and invited others to do the same. He wanted to place himself and his compatriots in an intense and emotional relationship with history through the medium of language:

Here perhaps is the place to fix, a little more precisely, what these two words, French Revolution, shall mean; for strictly considered, they may have as many meanings as there are speakers of them. All things are in revolution; in change from moment to moment, which becomes sensible from epoch to epoch: in this Time-World of ours there is properly nothing else but revolution and mutation, and even nothing else conceivable. Revolution, you answer, means speedier change. Whereupon one has still to ask: how speedy? At what degree of speed; in what particular points of this variable course, which varies in velocity, but can never stop till Time itself stops, does revolution begin and end; cease to be ordinary mutation, and again become such? It is a thing that will depend on definition more or lease arbitrary.

For ourselves, we answer that French Revolution means here the open violent Rebellion, and Victory, of disimprisoned Anarchy against corrupt worn-out Authority: how Anarchy breaks prison; bursts up from the infinite Deep, and rages uncontrollable, immeasurable, enveloping a world; in phasis after phasis of fever-frenzy;—till the frenzy burns itself out, and what elements of new Order it held (for all Force holds such) developing themselves, the Uncontrollable be got, if not reimprisoned, yet harnessed, and its made forces made to work toward their object as sane regulated ones. For as Hierarchies and Dynasties of all kinds... have ruled over this world; so it is appointed that this same Victorious Anarchy... French Revolution... should have its turn. (Carlyle [1837] 1934: 167 [emphasis in original])

It is the ‘great Phenomenon’ he continues, naming it ‘a transcendental one which oversteps all rules and experience’ one which makes away with all the old ‘formulas’
of a ‘regulated world’ (Carlyle [1837] 1934: 167–8 [emphasis in original]). There is no way to contain this erruption for it is in Carlyle’s thinking the way the world is. He describes it as the ‘World-Phoenix’ and calls it the ‘Death-Birth of a World’ giving forth image after image of violence which is the carthartic purge of one nation, a nation which eventually is reborn into an ‘Internal Life… of continual progress’. A nice contrast, yet even here he does not let it rest, for the new nation is imperfect and has not realised the dream of those who set out on the path of creating a new age. A new age in which change in the form of catastrophic upheaval is not the exception but the rule. Carlyle ([1840] 1885: 165) testified to this in a lecture he gave in 1840 after a second ‘Revolution’ had erupted in France in 1830:

A common theory among considerable parties of men in England and elsewhere used to be, that the French Nation had, in those days, as it were gone mad; that the French Revolution was a general act of insanity… The event had risen and raged; but was a madness and nonentity,—gone now happily into the region of Dreams and the Picturesque!—To such comfortable philosophers, the Three Days of July 1830 must have been a surprising phenomenon… The Three Days told all mortals that the old French Revolution, mad as it might look, was not a transitory ebullition of Bedlam, but a genuine product of this Earth where we live; that it was verily a Fact, and that the world in general would do well everywhere to regard it as such.

In the sense that the French Revolution, and further the idea of revolution itself came to symbolise change, it provided a useful metaphor for social change as a whole, even if the nature of the change was qualitatively different, to that experienced in France or for that matter the rest of Europe. However the tendency to espouse a notion of a ‘dual revolution’ as having taken place at this time, characterised by political change in France and industrial change in England may be ‘misleading’ (Harvie 1984: 419). For while there was a ‘defining moment’ of revolution in France in the storming of the Bastille, no such defining moment took place in England. The ‘Industrial Revolution’ was a gradual occurrence (Harvie 1984); though this does not mean that it was not marked by particular and publicly significant events—like the ‘First Reform Bill’ of 1831–2 and the Chartist Movement of 1837–48, civil events which were perceived and experienced at the time with as much passion and apprehension as had been the French Revolution.4 Indeed, even without a defining moment, the effects of the Industrial Revolution overlapped with the events of the French Revolution, and both were concurrent with important changes in cultural and intellectual life that can

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4 Chartism. ‘The first independent working-class movement in the world’ (Briggs 1987). A social protest movement that spread throughout Britain, it was characterised by the diversity of its manifestations, the concerns and activities of those involved who were ‘influenced by local economic predicaments, political traditions and the character of the leaders’. It was united however on the substance of its six-point People’s Charter of 1838: adult male suffrage, the ballot, equal electoral districts, abolition of property qualifications for MPs, payment for MPs, and annual parliaments, ‘which achieved the same immediate impact as the French Revolution and Daniel O’Connell’s campaign in Ireland’ (Harvie 1984: 444).
best be understood as an expression of all that was in ‘opposition’ to Enlightenment thinking (Halsted 1965).

Even before the [French] Revolution, which may be taken as an outward sign of an inward decay, it was no longer possible to think, act, write or paint as if the old forms still had life. (Barzun 1965: 22)

The destruction in France of the ancien régime also heralded the end of an intellectual environment that was governed by a belief in the primacy of reason, the universality of natural law, a mechanistic interpretation of the working of nature and society, and an abiding faith in progress through science as witnessed in the writings of Condorcet. To this can be added a view of history as linear, predictable, and progressive; one that was free of the actions of divine will, and was governed by general laws, that were susceptible to calculation and prediction (Halsted 1965; Manuel & Manuel 1979).

The French Revolution ‘which had as one of its most conscious intentions a literal rejection of the past’ brought an end to this utopian ideal (Gilbert 1983: 248). Regicide, which may be understood as an attack on genealogy, was only the most blatant expression of this tendency (Gilbert 1983). The other side of the belief was in the existence of an orderly and predictable universe, and of the celebration of the ‘rationalist-optimistic synthesis’ of thought. It is a belief which can best be summed up in a picture. In 1799, which may conveniently be called the last year of the Enlightenment, the Spanish painter Francisco Goya (1746–1828) produced a series of etchings among which one was called The Sleep of Reason Produces Monsters (Fig. 2). Though these etchings are mainly a comment on social, political and religious corruption in Spain at the time, at least half of the plates are concerned with the supernatural (Clark 1973). The new era required and acquired new symbols, and a concomitant sense of flux.

New Eras

In England, the period between 1830 and 1850 was marked by what one historian has described as a condition of ‘fluctuating discontent’ (Briggs 1983: 234). At the time Carlyle in his essay Chartism which was written in 1839 averred to the current social unrest and its consequences in terms that indicate a perception of historical change as a dynamic process. He writes in the chapter headed ‘New eras’:

5 In The Structure of Scientific Revolutions (1962) Thomas Kuhn writes that ‘In both political and scientific development the sense of malfunction that can lead to crisis is prerequisite to revolution’ (Kuhn 1962: 92).

6 Condorcet’s vision would live on to some extent in the work of the philosopher and sociologist Auguste Comte (1798–1857).
Due to copyright restrictions the reproduction of Francisco Goya, 'The Sleep of Reason Brings Forth Monsters' (details below) has been removed from the thesis and can be seen in Kenneth Clark, The Romantic Rebellio (London: John Murray, 1973): 77.

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For in very truth it is a “new Era”; a new practice has become indispensable in it. One has heard so often of new eras, new and newest eras, that the word has grown rather empty of late. Yet new eras do come; there is no fact surer than that they have come more than once. And always with a change of era, with a change of intrinsic conditions, there had to be a change in practice and outward relations brought about,—if not peaceably, then by violence: for brought about it had to be, there could be no rest until then. (Carlyle [1839] 1896: 170)

**Progress and Retrogression**

The idea that Eras come more than once and always with a change suggests both progression and retrogression. It is implied that time is both continuous and discontinuous. Thus there is an element of ‘evolution’ in the sense of events unrolling and ‘transmutation’ in the sense of actual physical and visible change. Symbolically a ‘French revolution’ (which for Carlyle and many other Victorians equalled political anarchy) is possible and can happen at any time to threaten the existing structure of human life and human institutions. The past is concatenated to the present. Significantly *The French Revolution* is written not in the past but in the present tense. Dickens invites his readers into the past at the beginning of *A Tale of Two Cities*:

only to imply, in a fleeting phrase, that these unsettling paradoxes must be applied to 1860—(“so far like the present times”). In his title ‘Dickens offers us two cities but only one tale; his narrative binds France to England, past to present. (McWilliams Jr. 1977: 19)

For the Victorians, public time, or history, had ceased to be merely a process of additive succession. It could now be conceptualized and understood as a ‘medium of organic growth and fundamental change’ (Buckley 1966). Time had become fluid. In *Signs of the Times* published in the *Edinburgh Review* in 1829 Carlyle invites his readers to consider this phenomena:

The poorest Day that passes over us is the conflux of two Eternities; it is made up of currents that issue from the remotest Past, and flow onwards into the remotest Future. We were wise indeed could we discern truly the signs of our own time; and by knowledge of its wants and advantages, wisely adjust our own position in it. (Carlyle [1829] 1969: 34–5)

There is something inherently mysterious about the flow of such currents, and Carlyle explores the link between the new visible forces active in contemporary society, in the natural world, and like the poet William Blake (1757–1827) the invisible, the ‘supernatural’ or mystical/transcendent phenomena which is manifested in the notion of the Divine. Carlyle, like other Romantic and Victorian writers was ultimately concerned with the interrelationship between the individual, society and
God. And while the quest for understanding is most keenly expressed through the insight of Diogenes Teufelsdröckh in *Sartor Resartus*, the vitalist-mechanist dichotomy is explored, as are other dualistic themes, in his other books and essays.

**The Age of Machinery**

Carlyle ([1829] 1969: 34) characterises his age as Mechanical in nature: ‘the Age of Machinery’, by which he means that the inventions, the new technology of the Industrial Revolution, have invaded all aspects of contemporary life including its physical and spiritual aspects:

> It is the Age of Machinery, in every outward and inward sense of that word; the age which, with its whole undivided might, forwards, teaches and practises the great art of adapting means to ends. Nothing is now done directly, or by hand; all by rule and calculated contrivance… Our old modes of exertion are all discredited and thrown aside. On every hand, the living artisan is driven from his workshop, to make room for a speedier, inanimate one… Even the horse is stripped of his harness, and finds a fleet fire-horse yoked in his stead, Nay we have an artist that hatches chickens by steam; the very brood hen is to be superseded!

Carlyle ([1829] 1969: 35) celebrates the power and the force of the new technology and acknowledges the material advances it brings to society: ‘Wonderful accessions have thus been made’ he point out, ‘to the physical power of mankind; ‘how much better fed, clothed, lodged and in all outward respects, accommodated men now are’. Yet the improvement has had the effect of ‘strangely altering the old relations, and increasing the distance between the rich and poor’; a challenging problem he sees fit to leave to political economists. Of more immediate concern is:

> how the mechanical genius of our time has diffused itself into quite other provinces. Not the external and physical, but the internal and spiritual also’, ‘nothing follows its spontaneous course, nothing is left to be accomplished by old natural methods. Everything has its cunningly devised implements, its preëstablished apparatus; it is not done by hand, but by machinery. (Carlyle [1829] 1969: 35)

‘Philosophy, Sciences, Art, Literature, all depend on machinery’ (Carlyle [1829] 1969: 36). By way of illustration, Carlyle ([1829] 1969: 35) tells his readers:

> we now have machines for Education: Lancastrian machines; Hamiltonian machines; monitors, maps and emblems. Instruction, that mysterious communing of Wisdom and Ignorance, is no longer an indefinable tentative process, requiring a study of individual aptitudes, and a perpetual variation of means and methods, to attain the same end; but a secure, universal, straightforward business, to be conducted in the gross, by proper mechanism, with such intellect that comes to hand.’

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7 ‘Lancastrian machines’ refers to the work of Joseph Lancaster (1778–1838) the Quaker educational reformer who introduced the monitorial system to teaching.* His followers formed the Royal Lancasterian Society in 1808. This later became the British and Foreign School Society. ‘Hamiltonian machines’ pertains to the work of the educationist James Hamilton (1769–1831) who developed a system for teaching languages based on the notion that language ‘should be introduced to the scholar as a living organism, and that its laws should be learned from observation not rules’
Carlyle ([1829] 1969: 37) laments that throughout Europe, ‘the Metaphysical and Moral sciences are falling into decay, while the Physical are engrossing, everyday, more respect and attention’. Particularly ‘there is now no such thing as a science of Mind’ and he speaks in a dispirited fashion of the failure of the ‘Philosophy of Mind’ to survive its infancy and the efforts of Dugald Stewart.\footnote{Dugald Stewart (1753–1828), Scottish philosopher and psychologist. A supporter of the ‘common sense’ philosophy of Thomas Reid (1710–96) the first academic to devote himself to teaching psychology. According to Reid: ‘[T]he wisdom of philosophy is set in opposition to the common sense of mankind. The first pretends to demonstrate a priori that there can be no such thing as a material world… The last can conceive no otherwise…The belief of a material world is older, and of more authority than any principles of philosophy’ (Reid 1764: 76–8). ‘Common sense implied belief in the existence of an objective material world, with real secondary qualities (colours, smells) our direct awareness of the self, and the existence of other persons’ (Hearnshaw 1987: 93; Reid 1764). Reid’s followers also included Thomas Brown (1778–1820) and Sir William Hamilton (1788–1856). Associated with the ‘Scottish Enlightenment’ they tended toward empirical modes of inquiry and ‘pressed for an experimental science of the mind stripped of traditional metaphysical suppositions’ (Robinson 1986: 171).}

In no nation but Germany… has any decisive effort been made in psychological science. The science of the age, in short, is physical, chemical, physiological; in all shapes mechanical (Carlyle [1829] 1969: 38).

Even mathematics (which Carlyle had studied before falling under the spell of German mysticism and Goethe’s writing) has fallen victim to the mechanical. Excellence in mathematics is no longer a matter of intuitive genius but rather a matter of acquired expertise ‘in wielding its machinery’, and he notes:

Without undervaluing the wonderful results which a Lagrange or Laplace educes by means of it we may remark, that their calculus, differential and integral, is little else than a cunningly-constructed arithmetical mill; where the factors being put in, are, as it were, ground into the pure product, under cover, and without other effort on our part than a steady turning of the handle. (Carlyle [1829] 1969: 38)

Carlyle ([1829] 1969: 40) extends this production-line imagery of the grinding out of numbers not only to science in general but also to society, likening civil government to ‘a grand working wheel from which all private machines must derive, or to which they must adapt their movements’.

No better demonstration can be given of the fact that the purely material and mechanical had invaded all aspects of human life and the disciplines concerned with understanding human life, than Carlyle’s reference to Cabanis’ *Rapports du physique*
et du morale de l’homme. Rapports encapsulates all that is representative of the current approach to philosophy the essence of which is its complete disregard of ‘The grand secrets of Necessity and Freewill, of Mind’s vital or non-vital dependence on Matter, of our mysterious relationship to Time and Space, to God and the Universe’ (Carlyle [1829] 1969: 38). Having made the suggestion that the ‘brain secrets thought’ as the ‘liver secrets bile’ Cabanis has in Carlyle’s opinion taken the dramatic step to eliminate altogether the very notion of spiritual humanity:

He fairly lays open our moral structure with his dissecting-knives and real metal probes; and exhibits it to the inspection of mankind, by Leuwenhoek microscopes… Thought… is still secreted by the brain; but Poetry and Religion (and it is really worth knowing) are a “product of the smaller intestines”! We have the greatest admiration for this learned doctor: with what scientific stoicism he walks through the land of wonders, unwondering; like a wise man through some huge, gaudy, imposing Vauxhall, whose fire-works, cascades and symphonies, the vulgar may enjoy and believe in,—but where he finds nothing real but the saltpetre, pasteboard and catgut. His book may be regarded as the ultimatum of mechanical metaphysics in our time; a remarkable realisation of what in Martinus Scriblerus was still only an idea, that “as the jack had a meat-roasting quality, so had the body a thinking quality,”—upon the strength of which the Nurembergers were to build a wood-and-leather man, “who should reason as well as most country parsons.” Vaucanson did indeed make a wooden duck, that seemed to eat and digest; but that bold scheme of the Nurembergers remained for a more modern virtuoso. (Carlyle [1829] 1969: 39)

Looking Outward, Looking Inward

Carlyle ([1829] 1969) argues that the great tendency of the age is to look outward, and yet he qualifies and tempers his argument with an acknowledgment that ‘inwardness’ is also a characteristic of the age; and it is this very outward/inward dichotomy which is such a ‘characteristic’ of the era and is so prevalent as a theme in its arts and letters.

9 Carlyle studied mathematics at Edinburgh University which he had entered as a divinity student in 1809. He ‘spent a good portion of five years (1817–22) studying physics, astronomy, geology and mineralogy’ and teaching mathematics before turning to literature, having become enamoured of German Romantic literature generally, and the transcendental philosophy of Johann Wolfgang von Goethe (1749–1832) particularly (Moore 1976: 21).

Anton Van Leeuwenhoek (1632–1723). Dutch scientist and microscopist who conducted ground-breaking investigations into the attributes of blood, blood corpuscles and spermatozoa, as well as revealing the structure of muscles, hair and teeth, and making numerous studies of animal plant and marine life.

10 Vauxhall Gardens. A pleasure park established in London in 1661 and closed in 1859. It provided refreshments, musical entertainments, fire-works and picture shows.

11 The Memoirs of Martin Scriblerus is a satire which was in part written by the Scottish physician, mathematician and wit John Arbuthnot (1667–1735) who is remembered for his friendships with Jonathan Swift, John Gay and Alexander Pope. All were members of the Scriblerus Club whose aim it was to ‘ridicule false learning and bad literature’. The satire was first published in 1741 in an edition of Pope’s works, but had been written as early as 1713–14.

12 Jacques de Vaucanson (1709–82). French inventor of robotic devices and machine tools, whose ideas and implements greatly advanced the development of mechanization particularly in silk weaving. ‘The Duck’ to which Carlyle refers was one of a number of automata created by Vaucanson. It not only simulated the movements of a live duck, but the motions of eating, drinking and digesting (The New Encyclopaedia Britannica, 15th edn., s.v. ‘Vaucanson’).
It allows for both the enthusiasm and concurrent doubt about the changes, particularly the social changes taking place in society. This doubt may already be evident in the symbolism of Joseph Wright's (1734–97) *Experiment on a Bird in the Air Pump* 1768 (Tate Gallery, London) (Fig. 3). In this painting the scientific stage is bathed in the light of scientific experiment; while a little girl shields her eyes against the knowledge of the fate which will befall the bird inside the bell jar, there is something of the same admixture of wonder and fear as is part of the vision of modern society of which Carlyle treats. The ‘chiaroscuro’, the play of light and dark, the theme of life and death, of certainty and uncertainty, and of the material and immaterial, if not the mutable and immutable world, are all as important as is the expression of a fascination with ‘applied technology’ which was a characteristic of Victorian society and ‘an age’ that had become ‘deeply committed to the exploration of the physical world’ (Langford 1984: 393). Perhaps Joseph Mallord William Turner’s (1775–1851) almost abstract *Rain, Steam and Speed*, 1844 (National Gallery, London) (Fig. 4) in which the train—a fact and symbol of the new era—seems to challenge Nature as it hurtles through the mist and rain comes closest to being a symbol of Carlyle’s own intellectual and creative vision.

What Carlyle gained from his study of Goethe and other German Romantics was a rejection of the French Enlightenment conception of progress as ‘rectilinear’ and of modernity as ‘centred on reason/science/technology’, and embraced in its stead the idea ‘that science, literature, philosophy, and religion were all complimentary’; and subject to the same intuitive and unifying processes as is the exercise of the creative imagination (Gouldner 1972: 5; Moore 1976). Thus providing a dynamic view of human life and society, one that counteracted the mechanist tendencies of the age.

**Sartor Resartus**

In *Sartor Resartus* Carlyle presents this idea in the guise of the ‘Philosophy of Clothes’ a combination essay and fiction, fantasy and social criticism, biography and autobiography in which he argues that ‘Everything under the sun can be seen as one form or another of clothing: ideas, institutions, manners, aristocracies, religions—are all kinds of outward representation. All life in short is, symbolic’ (Tennyson 1969:

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13 F. D. Klingender in *Art and the Industrial Revolution* (1947) described ‘Wright of Derby’ as ‘the first professional painter to express the spirit of the industrial revolution’ in his work (cited in Waterhouse 1953: 285; 349: n. 1.). Joseph Wright was in contact with the amateur industrialists and scientists who established themselves in Lichfield near Birmingham as members of the ‘Lunar Society’. They met on the Monday night nearest the full moon in order to make night travel easy for the horses. They were all liberal-minded individuals with interests in politics, science and religion. Among them, Erasmus Darwin, Josiah Wedgewood (1730–95) the potter, and Richard Arkwright (1732–92) the inventor of the cotton ‘spinning-frame’ were Wright’s patrons (Waterhouse 1953).
Due to copyright restrictions the reproduction of 'A philosopher shewing an experiment on the air pump' (details below) has been removed from the thesis and can be seen in Judy Egerton, Wright of Derby (London: Tate Gallery, 1990): 235

Fig. 3. A philosopher shewing an experiment on the air pump. Etching by Valentine Green from the painting Experiment on a Bird in the Air Pump, 1768, by Joseph Wright of Derby (Tate Gallery, London). Reproduced from Judy Egerton, Wright of Derby (London: Tate Gallery, 1990): 235.
The Clothes Philosophy strives to unite all reality, empirical and imaginative, internal and external in the service of the idea that all life ‘simultaneously blends the infinite with the finite and both conceals and reveals the godlike force operating through the symbols’ (LaValley 1968: 71). The whole can be read against the contemporary concern with [and reaction to] science, for Carlyle begins Sartor by presenting his readers with the quandary:

Considering our present advanced state of culture, and how the Torch of Science has now been brandished and borne about, with more or less effect, for five-thousand years and upwards; how, in these times especially, not only the Torch still burns, and perhaps more fiercely than ever, but innumerable Rush-lights, and Sulphur-matches, kindled thereat, are also glancing in every direction, so that not the smallest cranny or doghole in Nature or Art can remain unilluminated,—it might strike the reflective mind with some surprise that hitherto little or nothing has been written on the subject of Clothes. (Carlyle [1833–34] 1885: 3)

Carlyle continued this theme in his other writings on the progress of society in England, and offered his readers an alternative point of view. ‘There is’ he writes in Signs of the Times,

a science of Dynamics in man’s fortunes and nature, as well as of Mechanics. There is a science which treats of, and practically addresses, the primary, unmodified forces and energies of man, the mysterious springs of Love, and Fear, and Wonder, of Enthusiasm, Poetry, Religion, all which have a truly vital and infinite character; as well as a science which practically addresses the finite. (Carlyle [1829] 1969: 42)

Science and art which are the ‘free gift of Nature’ both spring from the dynamical nature of ‘man’ (Carlyle [1829] 1969: 43). Why, he asks in Sartor does science fail to take into account the:

Tissue of Tissues, the only real Tissue... of woollen or other cloth; which Man’s Soul wears as its outer wrappage and overall; wherein his whole other Tissues are included and screened, his whole Faculties work, his whole Self lives, moves, and has its being?

Scientists Carlyle argues see only the outer wrappings. He writes: ‘In all speculations they have tacitly figured man as a Clothed Animal; whereas he is by nature a Naked Animal’ (Carlyle [1833–34] 1885: 4 [emphasis in original]).

Yet the study of the ‘faculties’ of this mysterious animal were coming under serious investigation in his own time, and while the ‘progress of Science’ may have been deemed by Herr Teufelsdröckh ‘to destroy Wonder, and in its stead substitute Mensuration and Numeration’, increasingly science made use of these very methods to understand human mental and physical functioning, and regarded this activity of counting and classifying as a measure of progress in the ever broadening field of ‘science’ itself. This would become particularly so in anthropology and psychology. So much so that measuring would become central to the practice of both disciplines.

The German naturalist and traveller Baron Alexander von Humboldt (1769–1859)
Due to copyright restrictions the reproduction of Joseph William Mallord Turner, 'Rain, Steam and Speed' (details below) has been removed from the thesis and can be seen in Kenneth Clark, The Romantic Rebellion (London: John Murray, 1973): 257

could firmly state in his survey of the physical world *Kosmos* published between 1845 and 1847:

In all that is subject to motion and change in space, the ultimate aim, the very expression of physical laws depend on mean numerical values; which show us the constant amid change, and the stable amid apparent fluctuations of phenomena. Thus the progress of modern physical science is especially characterized by the attainment and rectification of the mean values of certain quantities by means of the processes of weighing and measuring. (cited in Scherzer & Schwarz 1859: 2)

**Phrenology**

Phrenology was one ‘science’ in which the instruments of calculation were used to reveal inward qualities through the measurement of outward structures. Its all encompassing rationale was such that it subsumed mechanical function within a vitalistic framework (Cooter 1984: 112). Phrenology postulated that ‘the brain is the organ of mind’ and the ‘psychological characteristics of an individual are determined by the size and proportion of controlling organs of the brain’, and that ‘the size of these organs can be discovered by noting the shape of the skull and, especially any protuberances, since the cranium corresponds closely to the shape of the brain beneath’ and that consequently an ‘individual’s character can be discovered from a careful examination of the head’ (Parssinen 1974: 2). For example, ‘A person with a highly developed “veneration” organ… will be extremely religious’ (Parssinen 1974: 2).

It was founded by two Germans the so-called ‘notorious itinerant physician’ Franz Joseph Gall (1758–1828) and his collaborator, the anatomist Johann Caspar Spurzheim (1776–1832). Both lectured widely in Europe. In Paris at the Paris Athéné (formerly the Paris Lycée) both were engaged as lecturers in a program that centred on the ‘two new sciences for estimating intelligence and character, physiognomy and phrenology’ (Staum 1995: 443). The aim of this program was in part to redirect medical thinking and diagnostic practice away from the ancient concept of the four humours and direct it instead toward the establishment of a ‘diagnostic science of character from external signs’ (Staum 1995: 443).

The doctrine of the four humours postulated that matter was composed of four basic properties—hot, cold, moist and dry—corresponding to four bodily elements: blood, phlegm, yellow and black bile, and this in turn determined a person’s temperament: sanguinous [confident], phlegmatic [apathetic], choleric [irritable] and melancholic [gloomy]. A concept which had continued to be an influential in medical diagnostics,
and because it was believed by physicians that a person’s temperament could be ‘discerned from his physical appearance, it found a place within the phrenological system’ (Parssinen 1974: 4).

**Gall**

Parssinen (1974: 4) notes that Gall’s importance lies in part in the fact that he wrested ‘psychology out of the grasp of philosophers and delivered it to the anatomists and physiologists’ and that he was a radical at a time when as further noted by historians of psychiatry Richard Hunter and Ida Macalpine (1963: 711) ‘little was known of the structure of the brain and almost nothing of its function’. They record that Gall ‘proceeded from analysis of function to that of structure’ making ‘discoveries in the nervous system to which anatomy alone could not and in fact did not lead’ (Hunter & Macalpine 1963: 712). He was assiduous in his investigations and examined diverse heads: those of children and adults, of the insane, of the deaf, of criminals and the exceptionally gifted; and came to the conclusion ‘that there were many specific faculties of mind rather than a few general powers’ (Hunter & Macalpine 1963: 712).

He compared human with animal skulls, observing that the increased intelligence from animals to human was accompanied by increased complexity of the surface area of the brain. From his observations he established five points of doctrine: (1) the brain is the organ of mind; (2) mind can be analysed into independent faculties; (3) these are innate and have their seat in the cortex of the brain; (4) the size of each cerebral organ is an indication of its functional capacity; (5) the correspondence between the contour of the skull and the cortex of the brain is such that the size of the organs and their potential role in psychological make-up can be determined by inspection (Hunter & Macalpine 1963: 714).

Hunter and Macalpine (1963: 712–14) note that Gall made the brain, ‘previously regarded as a hardly differentiated mass… into a functional apparatus with a plurality of independent but interlinked cerebro-mental organs’, which gave rise to the term ‘organology’ which was revealed by the shape of the head which ultimately produced the term ‘physiognomy’; and that this could be mapped on its surface, the cranium—hence the term ‘cranioscopy’; all names by which Gall’s system was known before the term ‘phrenology’ was introduced by Forster in 1815 and adopted by Spurzheim.15

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15 Thomas Ignatius Maria Forster (1789–1860) ‘Eccentric many sided genius who declined the fellowship of the Royal Society’ introduced the word ‘phrenology’ in an article in The Pamphleteer and in Sketch of the New Anatomy and Physiology of the Brain and Nervous System of Drs. Gall and Spurzheim, 1815 (Hunter & Macalpine 1963). Independently wealthy, he studied medicine at Cambridge and cultivated a life-long interest in many areas of knowledge. He wrote on meteorology...
Gall originally divided mind and brain into twenty-seven faculty-organs, a number which Spurzheim steadily increased to thirty-five.

In a biographical picture of ‘Doctor Gall’ published in *Moral and Intellectual Science Applied to the Elevation of Society* (1848) George Combe (1848: 218) repeated the popular story of Gall’s observation as a young student ‘that those scholars with whom he found the greatest difficulty in competing in verbal memory, were distinguished for large, prominent eyes’. Yet Gall ‘strongly resented any comparison of his system to physiognomy’ generally considered an ancient ‘folk’ approach to reading human character through the study of the features of the face and body. Physiognomy was an approach which had been popularized by a Swiss poet and Protestant theologian Johann Caspar Lavater (1741–1801) and systematized in his *Physiognomische fragmente sur beförderung der menschenkenntnis and menschenliebe* (Essays on physiognomy 1775–78; 1793).

Lavater

Lavater had tried to turn physiognomy into a science. ‘Physiognomy’ he wrote ‘is the science or knowledge of the correspondence between the external and internal man, the invisible superficies and the invisible contents’ (Lavater 1793: 11). But unlike phrenology which emphasized ‘cerebral localization’ physiognomy lacked a physiological component, though both sought ‘external signs of moral-physical relationships, by touch or by sight’ (Staum 1995: 449). Nevertheless, a significant ornithology, insanity and botany; and took an enthusiastic interest in astronomy, aeronautics, vegetarianism and temperance (Cooter 1976).

16 ‘Cerebral localization’: In the 1860s the physiologist Pierre Flourens (1794–1867) set out to test Gall’s ideas in the laboratory. Specifically whether particular psychological functions are located in particular parts of the brain. Unable to use humans, he removed small areas of the brains of animals, nursed them back to health and observed how their behaviour was altered by the loss of those areas. Gall had claimed that certain faculties were located in a part of the brain that was similar in humans and animals. ‘One such was the “organ of amativeness,” supposedly located in the primitive part of the brain toward the back and base of the skull. Flourens gradually removed more and more of a dog’s cerebellum, and noted that the dog gradually lost its power of orderly movement… The function of the cerebellum, clearly, was the coordination of purposive movement rather than amativeness. In 1861, Leborgnes, a patient at the Bicêtre asylum in Paris was transferred to the surgical ward with a gangrenous leg, and paralysis. He was put in the care of a young surgeon Paul Broca (1824–80) who questioned him about his ailment; but the man could only reply with meaningless words and gestures. He had entered the asylum twenty-five years earlier when he lost his power of speech, but had remained intellectually normal. The man died. Broca performed an autopsy and discovered that an ‘egg-sized area of the left side of the brain somewhat forward of the middle had been destroyed; there was almost no tissue at the center of the lesion, and around its edges the remaining tissue was softened… Broca concluded that the lesion had begun at what was now its center and while it was still relatively small, had completely destroyed Léborgne’s ability to speak; only later did its spread cause paralysis. Evidently, this small frontal-lobe area of the left hemisphere of the brain was the seat of speech. It has been known ever since as Broca’s Area’ (Hunt 1993: 105–6).
relationship would remain between physiognomy and physiology in the ‘science of man’.

**Phrenology in Britain: A ‘Provocation of Progress’**

Phrenology was introduced to Britain during Spurzheim’s public lecture tours of 1814 and 1815. It was taken up and propagated by the Scottish lawyer and moral philosopher George Combe (1788–1858) and his younger brother Andrew Combe (1797–1847) a successful Edinburgh doctor and physician to Queen Victoria.

It was a scientifically influential and societally popular movement. Phrenology appealed to both intellectuals and to those who had little or no education. It had the ‘good fortune to be introduced in Britain at the very time when the [public] scientific lecture was becoming a form of middle-class, and even working class entertainment’ (Parsinnen 1974: 4). As Ian Inkster (1980: 86) describes it:

> The value of such public lectures may be estimated as both generally educative and specifically utilitarian. The educative function of the independent public lectures was probably greatest in those areas where science had not been securely institutionalized.

For this reason the role of the often zealous lecturers, who were usually independent itinerant educators travelling from town to town was exceedingly important.

Astronomy, mathematics, philosophy, chemistry, mineralogy were all taught informally in whatever rooms was available for this purpose. However, such was the will for knowledge that something institutionally and structurally more permanent was wanted to facilitate intellectually improving activities, and local enthusiasts organized to create such venues.

Eventually the institutional forms ranged from the Mechanics’ Institutes and Reading Rooms to the Athenaeums and Literary and Philosophical Societies. Although few such forms were clearly designed as educational institutions, all harboured the public science lecture. (Inkster 1980: 90)

Phrenology travelled and was taught in this way, and it proved a favourite subject at the newly formed mechanics’ institutes.

Beginning with Combe and Spurzheim in the early 1820s, scores of phrenology lecturers spoke in cities and hamlets of Britain through the 1840s for the advancement of their science, the moral improvement of their audience and their own profit. (Parsinnen 1974: 4)

Ironically, Broca’s discovery of the **circonvolution de language** was located where Gall had originally placed the faculty of language (Cooter 1976).
From about the 1830s a course on the subject of phrenology became ‘a regular part of the curriculum of every mechanics institute’ (Parsinnen 1974: 4–5).

The movement of the itinerant lecturer was enabled by the tendency and the process for new ideas to travel from the centre (from London for example) to the periphery [provincial towns] along lines which were increasingly lines of important economic relationship (see Williams 1992; Tratchenberg [1977] 1986). Epitomised by ‘the growing industrial centres of Manchester, Birmingham, Sheffield, Leeds, Glasgow, Dublin, and elsewhere’ (Inkster 1980: 85). The ‘elsewhere’ could reach as far as the ‘margins of the industrial revolution’, even to the ‘most distant margin of the British world’ to colonial Australia ‘a classic example of British society on the periphery’ (Richards 1993: 221).

The progress of the public science lecture and of phrenology, which may be deemed a geographic, an intellectual and a cultural progress, followed the construction of ‘multiple systems of connection’ of which the [improved] roadway and the railway are the prime examples. If the locomotive could be regarded as a symbol of potential ‘transformative power’ in the nineteenth century [see Chapter 6] so could phrenology, for its main message, one which not at odds with religious teaching, was that change, social progress and personal improvement was within individual power, within individual reach as much as was the next station! And though it was lampooned by satirists and cartoonists who saw in it just another fad from Europe, it was supported by many members of the newer class of professional groups: among psychiatrists for example, and ‘the new breed of medical journalists’ who saw to it that it maintained a public audience.

R. J. Cooter (1976: 213) noting such adherents of phrenology as the philosopher Hegel, the sociologist Comte, the evolutionist A. R. Wallace, the novelists Charlotte Brontë and Mark Twain, the Prince Consort Prince Albert and Karl Marx, observes that as a system ‘it surfaced too close to too many of the centres of socio-intellectual revolutions of the nineteenth century to be [any longer] treated cursorily’.

‘Phrenology’ he suggests, was one of the most important intellectual manifestations of the nineteenth century... because of the wide range of Victorian values, ideas and attitudes it appears to have mediated. As a bridge between traditional ideas and institutions and secularized reforms the doctrine played an instrumental role; as a branch of somatic and biological science it popularized and irrevocably sealed the notion of mental faculties as the material manifestation of mind; and it brought into popular currency a conception of man as a highly evolved creature with physical, mental and moral faculties. The malleability of these faculties and their potential for improvement (especially moral improvement) firmly welded phrenology to the Victorian ethic of progress and self-improvement. The implications and applications of the doctrine
were in fact universal. As phrenologists claimed, theirs was the only complete Science of Man. (Cooter 1976: 213–14)

George Combe

Unlike physiognomy, phrenology and phrenologists, in order to gain ‘a more exact knowledge of the faculties of man and the functions of the brain’, took into account the structure of the brain within the skull, as George Combe made clear in Elements of Phrenology (1841). It was necessary in order to study the brain to consider ‘its structure or anatomy, and its functions or physiology’ and it was ‘absolutely impossible to become acquainted with the anatomy of any part whatever, and especially of the brain, without seeing a dissection or at least without having before our eyes well designed plates’ (Combe 1841: 44).

However, the conclusions that phrenology would be able to draw from its observations and calculations, its measurements and analyses, would be limited to a certain extent, by its role as a ‘mediator’ of the social values of its time (Cooter 1976). As individuals and as Victorians, phrenologists might be concerned with psychiatric, education or penal reform, but as a ‘movement’ its significance lay in its advocacy of ‘improvement’ through scientific means.

As disseminated through the Constitution of Man, phrenology provided a rational religion or a type of intellectual deism for the masses. No other doctrine went quite so far or had quite as much effect in replacing supernaturalism with the Natural Laws of Man. (Cooter 1976: 216)

In The Constitution of Man Applied to External Objects Combe ([1828] 1847: 49) enumerated these ‘laws’:

To discover the real affects of the physical laws of nature on human happiness, we need to understand, 1st, The physical laws themselves, as revealed by the phenomena of natural substances. These laws, so far as discovered, are treated of in works on natural philosophy, natural history, chemistry, and their subordinate branches; 2dly, The anatomical and physiological consideration of the human body; and 3dly, The adaptation of the physical laws to this constitution. These expositions are necessary to ascertain the extent to which it is possible for man to place himself in accordance with the physical laws, so as to reap advantage from them; and also to determine how far the sufferings which he endures may be ascribed to the inevitable operations of these laws and how far to his ignorance and infringement of them.\(^{17}\)

He continues, and considers that ‘Man is an organized being, and subject to the organic laws’ and that,

\(^{17}\) The Constitution of Man in Relation to External Objects first appeared as a private printing in 1827 and was published in 1828. Its popularity never waned. By 1860 upwards of 100,000 copies had been sold in Britain (twice the number of copies sold of Darwin’s Origin of Species by 1900). Translations into every major language (in Swedish the book was titled The Doctrine of Happiness on Earth), a schools’ edition and one in Braille further increased sales (Cooter 1976: 232n. 24).
an organized being... is one which derives its existence from a previously existing organized being which subsists on food, which grows, attains maturity, decays and dies. To render an organized being perfect in its kind, the germ from which it springs must be complete in all its parts, and sound in its whole constitution. This is the first organic law. If we sow an acorn in which some vital part has been destroyed altogether, the seedling plant, and the full-grown oak, if it ever attain to maturity, will be deficient in the elements which are wanting in the embryo root; if we sow an acorn entire in its parts, but only half ripened, or damaged in its texture by damp or other causes, the seedling oak will be feeble, and liable to premature decay. A similar law holds good in regard to man. (Combe 1847: 49)

The second organic law states that from the beginning of life the organized being ‘must be supplied with food, light, air... in due quantity, and of a kind suited to its particular constitution’ (Combe 1847: 49). A failure to obey this law would lead to ‘feebleness, general imperfection, pain, or early death’ (Combe 1847: 50). The third organic law holds that:

Man... duly exercise his organs, this condition being an indispensable requisite to health. The reward of obedience to this law is enjoyment of the very act of exercising the functions, pleasing consciousness of existence, and the acquisition of numberless gratifications and advantages, of which labour, or the exercise of our powers, is the procuring means: disobedience is followed by derangement and sluggishness in the functions, general uneasiness or positive pain, and the denial of gratification to numerous faculties. (Combe 1847: 50)

Combe (1847: 51) noted that the digestive organs had been given to ‘man’ and that vegetable and animal products had been placed around him ‘capable of being assimilated into his system’ and further, that ‘the power of reproduction is bestowed on him, with intellect to enable him to discover and obey the conditions necessary for the transmission of a healthy organic constitution to his descendants’.

A Charge of Materialism

Gall believed that ‘mental endowment was innate and dependent upon the biological organization of the brain’ (Hilts 1982: 62). He also supported the idea that mental and moral traits could be transmitted from parents to offspring. Both Condorcet and Cabanis believed that mental and moral traits were transmissible, and that biological perfection of the human race was possible.

Both Condorcet and Cabanis grounded their belief in the materialistic conviction that the mind is dependant for its function upon its physical organization—the same conviction that motivated Gall. (Hilts 1982: 62)

This ‘materialism’ which Carlyle regarded as a characteristic of the age and critiqued in Signs of the Times and Sartor, is evident in Combe’s writing, but is only one aspect of the complex phenomenon that is and was phrenology. Combe responded to the charge of materialism in this way in Elements:
The objection that phrenology leads to materialism has been frequently urged against the science; but it appears singularly unphilosophical, even upon the most superficial consideration. There are two questions… The one is, On what is the mind dependent for existence? The other, On what is it dependent for its power of manifesting itself in this life? Phrenologists declare themselves unable to decide upon the former point; but they maintain, that facts demonstrate the power of manifestation to depend on the condition of the brain. When a phrenologist says, that “the mental qualities and capacities are dependent upon the bodily constitution,” the sentence should be completed, “not for existence, but for the power of acting in the material world”. (Combe 1841: 170)

As noted in Chapter 3, Cabanis supported a notion of ‘environmental’ factors as playing a significant part in human development and physiological malfunction. As a physician, and following Hippocratic principles of a ‘healthy mind in a healthy body’ he advocated a system of physical therapy as a means of improving the quality of life. The beneficial effect of improvements in health would be passed from parents to children, and this in turn would effect the general improvement of the species:

Cabanis [also] believed that men were not born equal but possessed at birth different temperaments and intellectual capacities. Given this state of things, Cabanis agreed that men should seek equality by biologically perfecting the race over time. One route to biological perfection… was to manipulate those environmental factors that influenced human temperaments in expectation that improvements in human nature thus acquired would eventually become inborn. (Hilts 1982: 64)

**Phrenological Hereditarianism**

The belief that human nature could be positively modified by environmental means implied support for the Lamarckian doctrine of the inheritance of acquired characteristics. Gall did not believe that human nature could be modified or improved, because the innate ‘faculties of every created species, including those of mankind, were determined at the date of creation by the Creator and could not be lost or acquired subsequently’ (Hilts 1982: 63). However, his colleague Spurzheim, influenced by the writings of contemporary health reformers like Cabanis entertained both the notion of the perfectibility of the human race, and the idea that the way to attain improvement was to employ those methods which had been used to perfect ‘other created things’ (Hilts 1982). Spurzheim in his book *A View of the Elementary Principles of Education, Founded on the Study of the Nature of Man* (1821) was the first phrenologist ‘to deal at length with the implications of inheritance for the improvement of the human nature’ (Hilts 1982: 63). His views on inheritance were largely stimulated by his interest in insanity, an interest shared by George Combe’s brother Andrew.

George Combe had in common with other phrenologists an interest in ‘hereditary descent’ and in of the transmission of both desirable and undesirable mental and physical qualities, a concern to which he gives voice in *Constitution of Man*: 

Physiologists, in general are agreed that a vigorous and healthy constitution of body in the parents, constitutes existence in the most perfect state to the offspring, and vice versa. The transmission of various diseases from parents to children is a matter of universal notoriety; thus consumption, gout, scrofula, hydrocephalus, rheumatism, and insanity, are known to descend from generation to generation. (Combe 1847: 188)

The phrenologists were perhaps the first to popularize hereditary ideas before the emergence of Social Darwinism and eugenics. While a phrenologist like George Combe may have tended toward ‘a Lamarckian approach to inheritance that allowed him to blur the boundary between heredity and environment’ to which the emphasis on education and social reform attests, he and other phrenologists were among the first to seriously:

[Touch] on the same hereditary themes that were later addressed by the Social Darwinists and eugenicists, and their views paved the way of the hereditarianism of the later nineteenth century. (Hilts 1982: 63)

However, it has also been suggested (Hilts 1982: 63) that this brand of ‘phrenological hereditarianism’ was free of the ‘reactionary and racist overtones’ that would characterise Social Darwinism and eugenics in the later part of the nineteenth century.

**Phrenological Measurement and the Cephalic Index**

Phrenological measurement according to one writer was ‘notoriously imprecise’, with the whole system acting ‘as a kind of projective test in which the observer could match his prejudices to arbitrary eminences and ridges on his subject’s head’ (Harris 1968: 99). The desire of scientists, particularly anthropologists and later psychologists to obtain accurate measurements for use within their disciplines, fostered the invention of various devices for use in the laboratory and in the field. At the same time the continuing interest in assessing the skull and the brain as a method of discriminating between individuals, groups and races, witnessed the development of highly specialized apparatus to enable the task.

In 1840 the Swedish anthropologist Anders Adolf Retzius (1796–1860) devised the Cephalic Index. The cephalic index was developed in an attempt to classify race on the bases of difference in the conformation of the skull. Callipers were used to calculate the ratio of head length to breadth. The index is given in the formula:

$$\frac{\text{maximum head breadth}}{\text{maximum head length}} \times 100$$

Peoples with broad heads (cephalic index over 80) are classified as brachycephalic; those with long heads (less than 76) as dolichocephalic, and those in between, as
mesocephalic (mesaticephalic). The cephalic index could ‘be obtained with considerable precision, and this measurement became the mainstay of anthropometry throughout the remainder’ of the nineteenth century (Harris 1968: 99).

**Camper’s Facial Line and Angle**

Another technique used to classify race was the craniometric measurement devised by the Dutch anatomist Petrus Camper (1722–89):

To measure the skull he defined the “facial line” joining the jaw, nose, and forehead and the “facial angle” between this line and the horizontal. In the most perfect human features represented in classical Greek statues, the facial angle was almost ninety degrees. In the ape, this angle was much smaller. When Camper applied the technique to the different human races, he found that the European approximated most closely the classical ideal, while the facial angle decreased in other races, especially the Negro. In effect, he suggested that the Negro has a facial angle intermediate between the European and the ape. (Bowler [1983] 1989a: 92–3)

Known as ‘Camper’s facial line and angle’ (Fig. 5) it gained some popularity as a measure of perfection both in the arts—particularly among portrait painters—and in the sciences, where it found a place as a method of differentiation. Though Camper himself,

expressed the need for caution in interpreting these results… to many, it seemed inescapable that the Negro was the most apelike variety of man. And secure in the knowledge of their own racial superiority, Europeans began to use the naturalists’ argument to justify their exploitation of the “inferior” races. (Bowler [1983] 1989a: 93)

**Blumenbach**

The German physiologist Friedrich Blumenbach (1752–1840) utilized craniometric research to establish one of the first systems of racial classification.

Blumenbach appeared on the scene toward the close of a century which had been attempting, through debate on biology and physical anthropology, to find an answer to the problem of classification using concepts such as genus, race, and variety. (Bertolleti 1994: 103)

Making use of comparative anatomy he divided humanity into five ‘great families’: the Caucasian or white, the Mongolian or yellow, the Malayan or brown, the Ethiopian or black and the American or red. Significantly, Blumenbach ‘excluded virtually everything non-physical from the question of human classification’ (Odom 1967: 8).

What was significant about the facial angle was that it represented, or came to represent, the notion that physical appearance and mental faculty were closely related. Indeed, the French anatomist Georges Cuvier (1769–1832):
Fig. 5. Camper's facial line and angle. Reproduced from The Works of the Late Professor Camper, on the Connexion Between the Science of Anatomy and the Arts of Drawing, Painting, Statuary in Two Books. Translated from the Dutch by T. Cogan. Table 1, Fig. I-IV., Table 2, Fig. I-IV. London, 1794. Courtesy of Monash University.
Had proposed that the proportion of the mid-cranial section to that of the face, as well as Camper’s facial angle, were a measure of perfection of the mental faculties. He derived the former from the assumptions that the facial angle was a measure of dependence upon external sensations, therefore of the binding of the animal to the environment and the needs of raw survival; while cranial area reflected the development of internal, liberating faculties under the control of the self. The facial angle involved similar assumptions, in that long snouts and a low forehead (a low facial angle) indicated a sensory-bound state, while a short snout and a high forehead (a high facial angle) measured the dominance of intellect and will.

In tabulating sample facial angles, Cuvier acknowledged their evaluative, even aesthetic, interpretive foundation. His scale ran from 30° for the “most ferocious apes”, through 70° for negroes, 80° for Europeans, and then off the scale of real creatures to 90° for ancient sculpture of men, to 100° for ancient sculpture of divinities…

Thus, the measure of the faculties, apparently based solidly upon hard facts of comparative anatomy, rested upon a judgement of equivocal signs which revealed something of the inward nature of the signifying animal, and upon measurements which included in their very construction the evaluation they were designed to make. The scale of facial angles was suspended at either end from the airy realm of explicit aesthetic and moral judgement, and only passed through the domain of down-to-earth creatures in the middle. (Figlio 1976: 27–8)

A Scale of Perfection

Interestingly, Andrew Combe ([1834] 1972: 68) in Observations on Mental Derangement (1834) admitted that while ‘the facial angle has been almost universally received, even by anatomists and physiologists’, he cast doubt on the applicability and usefulness of Camper’s methods and Cuvier’s observations. His criticism was based in part on the recognition that the measurements and examinations relied on an external and subjective evaluation; on what Lavater had termed the ‘superficies’, and change could not therefore be universally applied. More importantly, such a reliance on subjective evaluation did not take into account human developmental changes, and from a phrenological standpoint did not admit to the physiological importance of the brain.

In the first place, it measures only the prominence, without, the breadth, of the anterior parts; and takes no cognizance whatever of any of the dimensions of the upper and back parts of the brain. 2ndly, From the small size of the jaw in the infant, the facial angle is then, according to CUVIER one of 90 degrees, while in decrepit old age it dwindles to 50 degrees; it therefore changes in different periods of life, without indicating a corresponding change in the degree of intelligence. 3rdly, The mass of brain being the same in two individuals, one with a large projecting jaw, like a negro, and another with a small jaw like VOLTAIRE, the angle will indicate a difference of 10, 15, or 20 degrees, where no difference really exists. 4thly, According to BLUMENBACH, three-fourths of the animals known to man have the same facial angle, with every possible difference in the kind and degree of faculties which they possess. 5thly, The external table of the skull is, in many animals, at such a distance from the internal, as to afford no index whatever to the size of the brain. The elephant is a familiar example. Hence, and for many other reasons, CAMPER’S invention is inapplicable, and does not offer results in harmony with experience. (Combe [1834] 1972: 68)
Judgements about ‘intelligence’ and mental functioning and social worth that were made as a result on procedures using mainly ‘aesthetic’ criteria as a yardstick became prevalent in the science of the nineteenth and early twentieth century. Lavater had in *Essays on Physiognomy* constructed in a ‘physionomically-mathematical manner’ a diagrammatic ‘scale of perfection’ (as Andrew Combe called it) showing the ‘lines of animality’ that described ‘the gradual transition from the head of a frog to the (Pythian) Apollo’ (Lavater 1793: 496) (Fig. 6). Phillipe Pinel in *Traité médico-philosophie sur l’aliénation mentale, ou la manie* (Treatise on insanity, 1801) in the light of Camper’s physiognomical researches proposed:

It would be an interesting speculation to determine how far the best proportions of the head are to be considered as external indications of the excellence of the intellectual faculties… the Pythian Apollo… might be taken for a prototype. Next in order, might be placed the heads of men most suitably organized for the successful pursuit of the arts and sciences, and progressively downwards every successive degree of malconformation of the head, with its corresponding intellectual capacity, to absolute ideotism and imbecility. (Pinel 1806: 116–17)

The Highest Ideal of Human Perfection

The Pythian Apollo was a standard of human perfection which according to Lavater (1793) only the great men of Europe could match. Men such as ‘Aristotle, Montesquieu, Pitt, and Frederic the Great’ approximated this ideal. This view was supported by Pinel and others including Carlyle, who believed as he wrote in *On Heroes, Hero-worship and the Heroic in History* (1840) that:

Universal history… is at bottom the History of the Great Men who have worked here [who] were the modellers, patterns, and in a wide sense the creators, of whatsoever the general mass of men contrived to do or to attain. (Carlyle 1840: 1)

An idea that would be developed further in Fredrich Nietzsche’s (1844–1900) concept of the ‘overman’ (übermensch) usually translated as ‘superman’ a being who

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18 Of the Apollo [Belvedere] J. J. Winckelmann had written in his *History of Ancient Art* (1764): ‘Among all the works of antiquity which have escaped destruction the statue of Apollo is the highest ideal of art. The artist has constructed this work entirely on the ideal… This Apollo exceeds all other figures of him… His stature is loftier than that of man, and his attitude speaks of the greatness with which he is filled. In the presence of this miracle of art I forget all else, and I myself take a lofty position for the purpose of looking upon it in a worthy manner. My breast seems to enlarge and swell with reverence… and I feel myself transported to Delos and into the Lycæan groves,—places which Apollo honoured by his presence… How is it possible to paint and describe it!’ (Winckelmann [1774] 1968, 2: 312–13).

19 Aristotle (384–322 BC), Greek philosopher, scientist and physician. Charles Louis de Secondat, Baron de la Brède et de Montesquieu (1689–1755), French philosopher, jurist and ‘man of letters’ whose treatise *De l’esprit des lois* (The spirit of laws, 1748) made a major contribution to political and social theory. William Pitt (1759–1806), English statesman and Prime Minister, the first to make use of the economic theory of Scottish economist and philosopher Adam Smith (1723–90). Frederic (or Frederick) the Great (1712–86), King of Prussia. Gained the epithet ‘The Great’ as a result of his involvement in the Seven Years War, the winning of which resulted in Prussia becoming a major European influence.
TABLEAU INDICUANT LE DéVELOPPEMENT PROGRESSIF DE LA TÊTE
depuis la Génouille jusqu'à l'Apollien du belvédère
par G. LA VATER.

EXPLICATION.
1. la première figure est toute la face genouillée, avec l'auge, de plus en plus
2. en long, et bien enlevée, genouillée en bas, de plus en plus enlevée
3. le visage est son visage, plus relevé
4. l'œil est de plus en plus
5. de loin, la main, l'œil est de plus en plus
6. le visage arrière est plus relevé, plus enlevé
7. de loin, il est de plus en plus
8. de loin, elle est de plus enlevée, de plus enlevée
9. les yeux, sont de plus enlevés
10. l'œil est de plus enlevé
11. de loin, elle est de plus enlevée, de plus enlevée
12. de loin, il est de plus enlevé
13. les yeux, sont de plus enlevés
14. l'œil est de plus enlevé
15. de loin, elle est de plus enlevée, de plus enlevée
16. de loin, il est de plus enlevé
17. de loin, elle est de plus enlevée, de plus enlevée
18. de loin, il est de plus enlevé
19. de loin, elle est de plus enlevée, de plus enlevée
20. de loin, il est de plus enlevé
21. de loin, elle est de plus enlevée, de plus enlevée
22. de loin, il est de plus enlevé
23. de loin, elle est de plus enlevée, de plus enlevée
24. de loin, il est de plus enlevé

Fig. 6. Tableau indiquant le développement progressif de la tête par G. Lavater
(Progressive development of man in 24 heads beginning with that of a tadpole and culminating in the noble visage of the Apollo Belvedere).
transcends the mundane realities of life to function at the highest ‘creative’ level. The Nietzschean philosophy also embraced the idea that ‘truth lies in the superiority of a point of view in securing dominance’ (Hamlyn 1987: 263). An idea that fits quite well as a summary of nineteenth century beliefs about the place of Europeans as conquerors and colonizers. Carlyle wrote of the colonies:

They are portions of the general Earth, where the children of Britain now dwell; where the gods have so far sanctioned their endeavour, as to say that they have a right to dwell… England looking on her colonies can say: “Here are lands and seas, spice-lands, corn-lands, timber-lands, overarched by zodiacs and stars… wide spaces of the Maker’s building, fit for the cradle yet of mighty Nations and their Sciences and Heroisms. Fertile continents still inhabited by wild beasts are mine, into which all the distressed populations of Europe might pour themselves, and make at once an Old World and a New World human…” (Carlyle [15th April 1850] 1903: 129–30)

Science was just another way of legitimizing, promulgating and upholding the ideas of the dominant power.

A point made by Cooter (1976) who supports this view with regard to phrenology. He suggests that those who made use of the tenets of phrenology to ‘improve’ the medical and prison system in Victorian times did so in order to secure the status quo.

That the embodiment of the highest ideal of human perfection was the head of the Apollo was also a statement about the presumed superiority of the culture that produced that symbol of perfection. Lavater who had incorporated the idea of the ‘Golden Section’ into his physiognomical analyses, believed that certain faces were incapable of great deeds. He had in effect converted ‘Camper’s racial differentiation by “facial line” into a serial hierarchy of physical beauty and moral worth implying the degeneration of modern races from the ancient Greek ideal of beauty’ (Staum 1995: 447). However, it was the archaeologist Johann Joachim Winckelmann (1717–68) who most sang the praises of European antiquity and who helped create that image of human perfection which was so influential in the nineteenth century appreciation of physical form. He wrote that the diseases that were ‘destructive of beauty’ were ‘unknown to the Greeks’:

There was no hint of small-pox, in the writings of their physicians; and Homer, whose portraits are always so truly drawn, mentions not one pitted face. Venereal

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20 The ‘Golden Section’ is the name given in the nineteenth century to the proportion derived from a line into what Euclid called ‘extreme and mean ratio’ and defined in Bk. 6, Proposition 3 of the *Elements* as follows: A straight line is said to have been cut in extreme and mean ratio when, as the whole line is to the greater segment, so is the greater to the less. (More simply the *Macquarie Dictionary* describes it as ‘the division of a line so that the shorter segment is to the longer as the longer is to the whole, roughly, a ratio of three to five; regarded as an ideal division’). The Golden Section has been called the ‘divine proportion’ and in the Renaissance was credited ‘with various mystical properties and exceptional beauties both in science and in art’ (The *Oxford Companion to Art*, 1970: 488).
plagues, and their daughter the English malady [syphilis], had not yet names. (Winckelmann [1765] 1999: 8)

It was Winckelmann who inspired others, including Victorian aesthetes, critics and historians of art like Walter Pater (1839–94) in the cause of the cult of Beauty; with Pater devoting a chapter to Winckelmann’s [method of] critical analysis of the ‘ideal art’ of the Greeks in his major work The Renaissance (1873):

“By no people,” says Winckelmann, “has beauty been so highly esteemed as by the Greeks. The priests of a youthful Jupiter at Ægae… and the priest who at Tangra led the procession of Mercury… were always youths to whom the prize of beauty had been awarded. Beauty even gave a right to fame; and we find in Greek histories the most beautiful people distinguished… It seems to have been thought that the procreation of beautiful children might have been promoted by prizes. This is shown by the existence of contests for beauty, which in ancient times were established by Cypselus, king of Arcadia, by the river Alpheus; and, at the feast of Apollo of Philê, a prize was offered for the deftest kiss. This was decided by an umpire… At Sparta, and Lesbos, in the temple of Juno… there were contests for beauty among women. The general esteem for beauty went so far, that the Spartan women set up in their bed-chambers a Nireus, a Narcissus, or a Hyacinth, that they might bear beautiful children.” (Pater [1873] 1910: 207–8)

At the beginning of the twentieth century, the English psychologist and polymath Francis Galton (1822–1911) would write in his autobiography (1908: 315) a chapter devoted to his work on race improvement and recall the sentiments expressed in the writing of Hereditary Talent and Character (1865: 165) a half century earlier:

So far as beauty is concerned… it is not so very long ago in England that it was thought quite natural that the strongest lance at the tournament should win the fairest or noblest lady. The lady was the prize to be tilted for. She rarely objected to the arrangement because her vanity was gratified by the éclat for the proceeding. Now history is justly charged with a tendency to repeat itself. We may therefore reasonably look forward to the possibility, I do not say the probability, of some such practice of competition. What an extraordinary effect might be produced on our race if the object was to unite in marriage those who possessed the finest and most suitable natures, mental, moral and physical.

He pointed out that ‘the last paragraph must of course be interpreted in the semi-jocular sense in which it was written’ and went on to ‘speak of some attempts by myself made hitherto… to obtain materials for a “Beauty-Map” of the British Isles’ (Galton 1908: 315). Developing one of his ingenious methods of carrying out this task he was able to rank ‘girls he passed in the streets or elsewhere as attractive, indifferent or repellent’ and came to the conclusion, while admitting that it was ‘a purely individual estimate’, that ‘London ranked highest for beauty; Aberdeen the lowest’ (Galton 1908: 316).

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21 This extract is a translation from Winckelmann which first appeared in the Westminster Review in 1867 and subsequently in Walter Pater’s The Renaissance (1873). Pater was associated with the Pre-Raphaelites and the ‘aesthetic movement’ particularly with its ‘somewhat exaggerated cult of beauty which set an extreme value upon the enjoyment of aesthetic experience’ (The Oxford Companion to Art, 1970: 821).
When Charles Dickens, in the opening lines of *A Tale of Two Cities* constructed his physiognomical word picture of the Kings and Queens of England and France, he was in part making a picture that would help his readers to place themselves in relation to time, place, people and history. With the aid of his illustrator George Cruikshank (1792–1878) Dickens (Dickens 1981: 56) in *Oliver Twist* (1837–39) created Fagin ‘a very old shrivelled Jew, whose villainous-looking and repulsive face was obscured by a quantity of matted red hair’ and Bill Sykes, a violent criminal, whose propensities are similarly marked out by a description of his physical build and the state of his costume. An embodiment of the idea that ‘All that a man does is physiognomical of him’ (Carlyle 1840: 399). As characters they are a blend of fact and fiction, the result of observations and knowledge about certain aspects of social life, and the shaping of that knowledge to make it accessible to a reading public.

Science was also about observation and knowledge and making reality accessible to the public. A ‘science’ like phrenology offered ‘not only an explanation for the changing class structure’ of Victorian England, but also an explanation ‘of the inferiority of those who were outside it altogether’ (Parssinen 1974: 7). Thus, before it would become possible to unite in marriage those individuals who represented the finest on mental, moral and physical grounds; it would become necessary to find a means to identify and select out those who did not conform.

To this end anthropometric measurement would be brought to a high degree of refinement by Francis Galton and others concerned with the perfectibility of the human species. This task was made possible by a belief fervently held (as fervently as Condorcet had held it) that through the agency of science and technology the forces of nature could be harnessed for the benefit of society. In this they were continuing the process already begun in the eighteenth century on the Continent and in England, though it was now a more socially pervasive idea because technology as represented

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22 David Paroissien (1992: 96–7) notes that Dicken’s portrait of Fagin has drawn considerable criticism from contemporary and later readers who consider the novel ‘relentlessly anti-Semitic’. The constant reference to Fagin as ‘the Jew’ is an ‘intrusive epithet that recurs throughout the novel and creates a painful effect which lends support to the charge that the text is anti-Semitic’. The portrayal of Jews with red whiskers and red hair appears in other Dickens’ writings notably those in *Sketches by Boz*. The stock Jewish character is familiar from Shakespeare’s Shylock in the *Merchant of Venice* and from contemporary melodrama. Elements of the stereotype of ‘the Jew as Bogy’ include a hooked nose, red hair and a lisp and the ‘Jew as a Satanic figure who leers and threatens perpetuated a terrible and perilous myth long predominant in Western culture’ (Paroissien 1992: 96–8). The racial stereotyping is accentuated by Cruikshank’s illustrations. He produced similar racial stereotypes of Negroes and islanders in his frontispiece to the *Comic Almanack and Diary* (1851) published and printed in London by D. Bogue. Titled the *Probable Affects of Over Female Emigration, or Importing the Fair Sex from the Savage Islands in Consequence of Exporting all our own to Australia !!!!. It is a fairly potent example of the satirists’ and propagandists’ art. A hand-coloured engraving, a copy of this original is in the Mitchell Library collection in the State Library of New South Wales.
by the expansion of the railway and the growth of manufacturing cities, and in manufactured goods had ‘shifted’ the idea of progress into the public arena: progress was now seen to be taking place. The Great Exhibition of 1851 was a visible demonstration of this ‘fact’, as was the engineering feat in which it was housed, Joseph Paxton’s *The Crystal Palace*. Victorians could see progress in action. This kind of progress, achieved through the successful harnessing of industrial processes resulted in a mind-set in which improvement was regarded as a norm and a potential at all levels of human existence.

Improvement so-construed, construed as a feat of engineering could be extended to include the human frame. In the same way that a blueprint could be utilized to construct a better bridge, a blueprint might serve to build a better human or human society: social and genetic *engineering*. Not a new idea of course, for the concept of a mechanistic or ‘clockwork’ universe had existed since the seventeenth century; and La Mettrie, as Thomas Carlyle reminded his readers, was mainly noteworthy as the man who described human beings as bile-secreting automatons.

However, it was generally observed that human beings were anything but automatons. The desire for a means of controlling human life was more accurately the desire to *bring order* to the unpredictable aspects of human production, development and social arrangements. Perhaps even to the human psyche. It was a desire to bring order in the same way that order had been brought to the construction of the industrial and built environment. It led to an attempt to organize human life at both the individual and group level along lines guided by a rule or plan. The perfecting of the human species which had always been a theoretical possibility could now (as Condorcet had prophesied) be undertaken along lines guided by the implementation of the rules of the orderly sciences of mathematics and statistics.

Francis Galton was one nineteenth century social-scientist who advanced this process, bringing order to the study of human intelligence and to the study of the nature of hereditary development while at the same time making some influential contributions to the science of statistics. His hereditarian investigations were carried out in the context of an expanding British Empire and the consciousness that British men and women had inherited from their ancestors the physical and mental power to undertake the ‘vast-world work’ that enjoined them to ‘carry light and civilization into the dark places of the world’ (Wyatt 1897: 529). Galton’s exertions in the name of a science of human perfectibility is the subject of the next chapter. His work provides an example of how one idea, above all others, that of a ‘science’ of eugenics became a dominant and motivating force in the development of mental measurement and by
extension, since for so long it has been a central focus of the profession, of the development of psychology itself.
Chapter 5

An Hereditary Bent of Mind

I hence conclude that the improvement of the breed of mankind is no insuperable difficulty. If everybody were to agree on the improvement of the race of man being a matter of the very utmost importance, and if the theory of the hereditary transmission of qualities in men was as thoroughly understood as it is in the case of our domestic animals, I see no absurdity in supposing that, in some way or other, the improvement would be carried into effect.


Focus of Chapter

In this chapter an attempt to realize the idea of perfection is discussed in the work of the English psychologist Sir Francis Galton. Condorcet’s utopian view of society and human development expressed in the Esquisse, his position ‘that nature has set no limit to the realization of our hopes’ is shown in the process of its accomplishment as a broad ‘methodological assumption’, one which suffused the hereditarianism of Galton’s mature work. The significance of the eugenic enterprise and philosophy which is hinted at in the science of the Esquisse of the Tenth Epoch is made explicit in the science of Hereditary Talent and Character and most of Galton’s other work devoted to the hereditary transmission of intelligence. There is little sense of unease in Condorcet’s message of the future usefulness of science as regards the improvement of all aspects of human social life. Condorcet had no basis on which to rest or test his assumption that ‘nature had set no limits’ and does not make the psychological ‘next step’ toward a science of genetics, and what questions this possible step raises for society. For Condorcet eugenics is the end point whilst for Galton (1865: 319; 1901) it is the beginning of realization of our hope if only everybody can be convinced that race improvement is ‘a matter of the very utmost importance’ suggesting that a barrier exists which is a philosophical rather than a scientific one. Is it a good idea? For Condorcet it is a good idea because eugenic reform is part of a package of reforms embracing a global strategy for institutional, political, environmental and educational improvement. It involves in part, along with other ameliorating deeds, the elimination of class and sexual barriers to participation in education. Galton, like Condorcet, is part of a privileged social group at a time when—as Carlyle attests—there are visible
signs of social improvement in a material sense. Yet his concerns are not overtly with any of the ‘improving’ mechanisms which science may bestow on society in the manner of Condorcet’s vision. Galton’s humanity is not on the way to becoming gods. Galton does not view human life as continuing indefinitely. He does not venture far outside the mechanics of his specialism and the tools which are the apparatus of that specialism. The story of Galton the eugenicist is as much the story of Galton the psychologist. Eugenics developed psychology. It is sometimes difficult to reconcile Galton the man, the personality, from Galton the founder of scientific race-improvement. Lovejoy’s (1936: 19) command to examine specific ideas as dispersed among a wider group of thinkers extends in Chapter 5 to include visual representation as part of this process of analysis, to demonstrate how visual ‘language’ also reflects and is able to communicate the ‘beliefs, prejudices, pieties, tastes, aspirations current among the educated classes’. In particular it examines the use of the ‘anthropological’ style of social observation and commentary in the ‘modern-life’ painting of William Frith. In this chapter, through an examination of these nineteenth century writings and visual works, the relationship between the Victorian understanding of the related ideas of [social] improvement, of [human] perfectibility and social and biological evolution is investigated.

The Language of Science

In the second volume of his massive biography The Life, Letters and Labours of Francis Galton (1914–30) Karl Pearson has a chapter titled ‘The passage from Geography to Anthropology and Race Improvement’. As well as marking the beginning of Pearson’s account of Galton’s development as a mature scientist it is a useful description for the era as a whole.1

In his autobiography Memories of My Life (1908) Galton discusses his ‘Social life’ including the ‘occasional excursions he made to visit Charles Darwin at Down, usually at luncheon-time, always with a sense of veneration’, and the visits he enjoyed among others of social and scientific standing. On one such occasion Thomas Carlyle was also a guest. On first meeting him, Galton (1908: 169–70) found Carlyle ‘unexpectedly courteous and even polished in manner’ but on a second occasion ‘he became more like his ordinary self… the greatest bore that a house could tolerate’, which crime entailed the repeated telling of the same story over and over again and the tendency to ‘rave about the degeneracy of the modern English without any facts in

1 D. W. Forrest in his biography Francis Galton: The Life and Work of a Victorian Genius (London 1974: ix) notes that ‘the deterrent effect of Pearson’s mammoth 2000 page biography is considerable’ and that in creating a monument to a man he ‘admired above all others’ he created a work of such bulk that it ‘buried the man beneath the monument’. 
justification’. While this event is of minor historical significance, the sentiment embodied in Galton’s criticism of Carlyle’s sweeping statement is instructive.

There had always been in Carlyle’s thinking and writing a certain scepticism and ambivalence about the method of scientific enterprises and the role such enterprises were to play in human life and the development of society. The science of the time is conceived of by Carlyle as being mechanical and soulless; and in the service of the utilitarian needs of industry. Carlyle following the example of Goethe’s philosophy longs for a ‘pure moral science’ one that is intuitive and non-analytical and whose aim it is to explore nature to the extent that the exploration may throw light on God’s mystery. He hopes that the language of science may ‘yet be adduced in the expression of moral and religious truth’ (Moore 1976: 33). Carlyle like Goethe, seeks to unite science and art at a time when the two were becoming increasingly separate as spheres of human enterprise. Science in Europe and England was becoming more distinctly analytical, empirical and inductive, taking on those characteristics of science familiar in the twentieth century (Moore 1976).

When Galton uses the phrase ‘raving about the degeneracy of the modern English without any justification of the facts’ he is speaking the language of science. Implied is the directive that only by analysis of the facts—which during the nineteenth century was increasingly expressed as numerical or statistical values—could the truth be ascertained. Indeed, it has been written of Galton:

He was always to be unhappy with data that could not easily be quantified and sought for new techniques of measurement to bring material under control. “Whenever you can, count” became his favourite dictum. (Forrest 1995: 3)

The desire to bring material under control: to collect, classify and contain is a hallmark of the age. It stands as an interesting counterbalance to the individualism and liberalism which mark the economics and politics of this period in Britain. A time which one writer sees as having provided the perfect historical climate for the development of a scientist who would initiate the study of differences among individuals (Forrest 1995).

The Wonderful Century

Francis Galton’s life spanned most of what the naturalist Alfred Russel Wallace (1823–1913) called ‘The wonderful century’ in his book of the same title published in 1898. It was a period of unparalleled progress marked by the creation of ‘marvellous inventions and discoveries… and innumerable applications of science which… remind[ed] us every hour of our immense superiority over our comparatively ignorant
forefathers’ (Wallace 1898: 1). 2 Wallace, who was co-discoverer with Darwin of evolution by natural selection, ventured to sum up the achievements of the nineteenth century and compare them with those of previous centuries, a task which led him to the conclusion that the difference was indeed so striking that ‘as regards the number and the quality of its onward advances, the age in which we live fully merits the title I have ventured to give it of—THE WONDERFUL CENTURY (Wallace 1898: 156).

The wonderful century in England was dominated by the reign of Queen Victoria. (1819–1901) from 1838 to 1901. Francis Galton was 15 years old when she came to the throne and outlived her by 10 years, thus living well into the Edwardian Age. He was ‘a prolific researcher, with an output of over 340 papers and books’ (Forrest 1995: 2). 3 He possessed a restless scientific curiosity and a genius for invention that perhaps reflects in the one being all those qualities that A. R. Wallace attributed to the age itself. Though now in contrast to other Victorian scientists he is ‘at best compartmentalised [and] at worst virtually overlooked’ (Bynam 1993: 34).

He invented mathematical statistics by discovering regression, he invented the heredity-environment question as it relates to individual differences, fingerprinting as part of modern criminology, and several major developments in meteorology. He also did some zany work in introspective psychology. (Rabinowitz 1984: 159)

He was the first to apply Darwinian principles of variation, selection and adaptation to the study of individuals and races (Murphy & Kovach 1972). One writer has even drawn a ‘parallel between his contributions to the demographic sciences’ and those made by Leonardo da Vinci ‘to the mechanical and biological sciences’; while also noting that Galton (though lacking in artistic talent) stands ‘at the first stages of anthropological sciences and experimental psychology’ as ‘Leonardo stood at the beginning of the Renaissance’ (Peel 1954: 10).

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1 The full title of this work is *The Wonderful Century: Its Successes and Failures*. Among successes he lists fast transport; labour-saving devices, photography, the telephone, advances in physics, chemistry and physiology; along with the ‘establishment of the general theory of evolution’ which he regards as ‘the greatest scientific work of the nineteenth century’. Among failures he lists the non-acceptance of phrenology. He also cites the ‘absolute uselessness of vaccination’ regarding it as ‘a gross interference with personal liberty and the sanctity of the home’. He concludes that the ‘plunder of the earth’ as part of a mad struggle for wealth, including the ‘struggle for gold in California, Australia, South Africa and elsewhere’ have destroyed the environment—one of the more detrimental affects of the age of progress.

Apart from published books and contributions in the published proceedings of organized bodies like the British Association, the Royal Geographical Society, and the Royal Society, many of his writings appeared in the newly burgeoning newspaper and periodical press, during what has been described as ‘the great age of periodical literature’, a period which commenced with the foundation of the *Edinburgh Review* in 1802 and lasted till the Great War (Cox 1958: 188). Galton contributed to *Macmillan’s Magazine* and *Fraser’s Magazine* and significantly to the scientific journal *Nature* which first appeared in November, 1869.

**The Journal Nature**

*Nature* had grown out of the demise in 1866 of the weekly journal *The Reader* of which Galton was co-editor with the philosopher Herbert Spencer (1820–1903) and the astronomer Norman Lockyer (1836–1920). As Karl Pearson (1914–30, 2: 68–9) explains in his biography ‘The Reader had been established in January 1863 as a Journal of Literature, Science and Art, and when purchased towards the end of 1864, the program of its future aims was proposed as follows’:

The very inadequate manner in which the progress of Science and the labour and opinions of our scientific men have been recorded in the weekly press and the want of a weekly organ which would afford scientific men a means of communication between themselves and with the public, have been long felt.

Pearson (1914–30, 2: 68) notes that the prospectus for *The Reader* states that its aims are supported by no less than 75 names comprising ‘practically all the men who created mid-Victorian science’. However, because there was ‘no one man who would devote his whole life and whole energy to the projected task, *The Reader* came to nought’ (Pearson 1914–30, 2: 68). *Nature* on the other hand was to survive. Using the nautical metaphor so appropriate to make in connection with those who contributed to the intellectual life of the great Empire, Pearson tells that Norman Lockyer was its first editor, while ‘Galton, Wallace, Darwin, G. H. Lewes, Sir William Thompson, Tylor, Balfour Stewart, Roscoe, etc. all the crew of the old *Reader* manned the new vessel and helped steer its course into smooth waters’ (Pearson 1914–30, 2: 69).

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4 None of the scientists had the commercial experience needed to run such a specialized enterprise and according to Galton ‘The newspaper proved dull, notwithstanding some really good articles. The management was naturally too amateurish; promised articles were delayed, and the time of the committee was wasted in frequent discussions about first principles, upon which Spencer loved to dilate’ (Galton 1908: 168).

5 George Henry Lewes (1817–78), Philosopher and literary critic. He wrote a biography, *Life and Work of Goethe*, 2 vols. (1855) and was the founder/editor (1865–66) of the *Fortnightly Review*. Unhappily married, in 1854 he left his to wife for the novelist George Eliot (Mary Ann Evans, author of *Middlemarch*, 1871–72) with whom he remained until his death.

Sir William Thompson (1810–86), Greek scholar. Edited Plato’s *Phaedrus* and *Gorgias*, and was master of Trinity College, Cambridge.
The first volume of *Nature* included a review by A. R. Wallace of Galton’s ‘first important published book’ *Hereditary Genius* (*Nature*, 17 March 1870, Vol. 1: 501) a book in which the author proposed ‘to show that a man’s natural abilities are derived by inheritance, under exactly the same limitations as are the form and physical features of the whole organic world’ (Galton 1869; 1892: 1; Wallace 17 March 1870: 502). *Hereditary Genius* would be followed in time by three other books in which he would expound on the theme which came to dominate his thinking until the end of his life. In *English Men of Science: Their Nature and Nurture* (1874), *Inquiries into Human Faculty* (1883) and *Natural Inheritance* (1889) Galton would attempt to bring about the successful ‘application of mathematics to social phenomena’, a task which Condorcet had considered a proper role for science and prophesied in the Tenth Epoque of his *Esquisse* as a dimension of all future human progress.

Galton is now mainly known for the part he played in introducing statistical methodology into the social sciences, which along with the development of the research laboratory might be considered one of the most important innovations of nineteenth century science (Hilts 1973). He is also known for promoting the application of statistics in the study of the ‘problems of heredity’ and as the founder of eugenics: ‘the study of agencies under social control that may improve or impair the racial qualities of future generations either physically or mentally’ (definition cited in Pearson, 1914–30, 3A: 223).

Karl Pearson regarded this as Galton’s greatest achievement; along with the ‘idea of correlation’ which he described as ‘the key… to the treasure chamber’ a key that would ‘open to quantitative analysis wide fields of medical, psychological and sociological research’. A key denied Condorcet and his countrymen the economist Turgot and the mathematician-astronomer Pierre, Marquis de Laplace (1749–1827) all of whom had sought to make use of arithmetical and statistical information as an aid to understanding social life and natural phenomena, during the period of the Enlightenment (Pearson 1914–30, 3A: 1; Porter 1986).6

Sir Edward Burnet Tylor (1832–1917), Anthropologist. First Professor of Anthropology at Oxford University and Keeper of the University Museum. His main works are *Primitive Culture* (1871) and *Anthropology* (1881).

Balfour Stewart (1828–87), Scottish physicist. Director of Kew Observatory (1859) and Professor of Physics at Owens College, Manchester (1870). Stewart gained his reputation for studies of radiant heat, wrote papers on terrestrial magnetism and sunspots, and was one of the founders of spectrum analysis.

Sir Henry Enfield Roscoe (1833–1915), Chemist. Professor of Chemistry at Manchester (1857 to 1886) and vice-chancellor of London University from 1896 to 1902. His writings include *Treatise on Chemistry* (6 vols. 1878–89).

6 The term ‘political arithmetic’ to describe the ‘systematic study of social numbers’ was coined by the English economist William Petty (1623–93). Petty published a book explaining the usefulness of comparative statistics under the title *Political Arithmetic* in 1691 in which he discussed ‘a variety
For Karl Pearson:

the final crusade for eugenic principles was the crowning phase of a life whose
labours in medicine, evolution, anthropology, psychology, heredity and statistics
directly fitted him to be a teacher and prophet [of the new faith]. (Pearson 1914–30,
3A: vii)

Another writer has described eugenics as Galton’s ‘most unfortunate escapade’
(Rabinowitz 1984: 164).

However this ‘escapade’ can only be understood when considered in relationship to
Galton’s own background, his diverse scientific interests, and in the context of the
period in which he lived.

**Galton Biographically**

It has been customary to approach Galton biographically and from the perspective of
genealogy. Most writers note that Francis Galton, who in Pearson’s words ‘did so
much to make the world at large appreciate the value of a good series of forebears’
(Pearson 1914–30, 1: 5) came from a prominent and industrious Quaker family that
was well connected in the spheres of business and science. His grandfather Samuel
Galton, FRS (1753–1832) ‘a fascinating amalgam of sobriety and high spirits’ was a
wealthy Birmingham industrialist who had, unusually for a Quaker, made his fortune
through the manufacture of guns. Samuel had married Lucy Barclay (1757–1817) in
1777, and their union had produced ten children. Their eldest boy died in infancy and
their second son was Samuel Tertius Galton (1783–1844) Francis Galton’s father.
Described by Pearson as a ‘wealthy banker with a scientific bent… eminently statistical
in disposition’ (Keynes 1993: 4) Samuel Tertius married Frances Anne Violetta
Darwin (1783–1874) the daughter of Erasmus Darwin by his second wife Elizabeth
Pole (née Collier). The offspring of Erasmus Darwin’s first marriage to Mary Howard
(1740–70) was Robert Darwin (1766–1848). He married Josiah Wedgewood’s
dughter Susanna (1765–1817) and their child was the naturalist Charles Robert
Darwin (1809–82) and Francis Galton’s cousin.

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of schemes through which number and calculation could be applied to subjects’. The
mathematicians and economists of the Enlightenment were all largely concerned with the gathering
of statistical information in the service of the state. Political arithmetic was also ‘closely tied to the
collection of population records and especially to the preparation of accurate life tables for the
purpose of calculating insurance and annuity rates’. The German term ‘Statistik’ was first used in
1749 by Gottfried Achenwall (1719–92) and the anglicised form introduced by John Sinclair
(1754–1835) in the first volume of his 12 volume *Statistical Account of Scotland* (Edinburgh,
1791–99) compiled with the help of every parish minister in Scotland. Sinclair sought to
distinguish his work from Continental sources by asserting that his inquiry sought to measure the
‘quantum happiness of the people’ in order to promote future improvement (see T. M Porter 1986.
Erasmus was a philosopher, a poet and a radical free-thinker. A man ‘who combined the busy life of a popular and skilled physician with a penchant for speculative science and mechanical invention’ (Forrest 1974: 1). He was a founder member of the Lunar Society and Josiah Wedgewood’s physician (Keynes 1993: 4). His science was often clothed in poetic form, and as the author of ‘The loves of the plants’ part of The Botanic Garden (1792) he described in 2000 lines of verse the reproductive process in plants, and ‘spoke of “the gradual evolution of the young animal or plant from the seed”’ (Bowler 1975: 98). In his two-volume work in prose Zoonomia, or the Laws of Organic Life (1794–96) he proposed his ‘Theory of Generation’ which, in Pearson’s (Pearson 1914–30, 2: 202) words, anticipated Lamarck in arguing for ‘a doctrine of evolution based upon the inheritance of acquired characters… and [which] recognized the unity of all forms of life’. While popular with the reading public it ‘had too little factual support to command general acceptance by the scientific community of the time’ (Forrest 1974: 2). It would be left to his grandson Charles Darwin and his assiduous collection of facts in support of his research into ‘natural selection’ that would lead ultimately to a ‘scientifically satisfactory explanation of evolution without the necessity for miraculous interposition or supernatural interference with the ordinary laws of nature’ (Encyclopaedia Britannica, 14th edn., s.v. ‘Erasmus Darwin’).7

Francis was the last of nine children born to Violetta and Samuel. Two girls, Agnes and Violetta died as infants. His surviving sisters were Elizabeth (1808–1906), Lucy (1809–48), Millicent Adèle (1810–83), and Emma (1811–1904). He had two brothers, Darwin (1814–1903) and Erasmus (1815–1909). His sister Adèle at the age of just twelve was his first teacher, and it was she who first introduced him to pursuits of a scientific and literary nature (Pearson 1914–30, 1: 63). Adèle (‘Sister Delly’) encouraged his fondness for natural history and ‘taught him a good deal of entomology, a study he became particularly fond of’ (Pearson 1914–30, 1: 68). Later in life he would conduct a number of experiments in moth-breeding in order to pursue his hereditarian interests.8

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7 There has been some debate about the place of Erasmus Darwin’s contribution to evolution. Though Charles Darwin had read Zoonomia and been impressed by it, he did not acknowledge any debt to his grandfather’s evolutionary speculations.

8 Galton published a ‘circular’ titled Pedigree Moths: On a Proposed Series of Experiments in Breeding Moths in 1887, followed in the same year by Pedigree moth-breeding, as a means of verifying certain important constants in the general theory of heredity, and practical suggestions as to the method of breeding Selenia illustraria for the purpose of obtaining data for Mr Galton’, published in Transactions of the Entomological Society, Part 1 (1887): 19–34. Galton wished to test his ‘Law of ancestral heredity’ and engaged the help of an entomologist to obtain, breed, and measure moths for this purpose. The six-year experiment failed to produce the kind of ‘statistical’ data Galton was after, and was abandoned.
Always found studying the abstruse sciences

At the age of five he was sent to a ‘dame’ school for 25 little boys conducted by a Mrs French. She thought very highly of her pupil who was already considered a prodigy, and commented that ‘the young Gentleman is always found studying the abstruse sciences’ (cited in Pearson 1914–30, 1: 67). This was followed when he was eight and a half, by a painful two-year sojourn at boarding school in Boulogne ostensibly to learn the French language. On his return he was sent to attend King Edward’s School, Birmingham (then called the Free School) under the headmastership of Dr Jeune, a scholarly man who later became Master of Pembroke College, Cambridge and Bishop of Peterborough. The curriculum, with its heavy emphasis on the classics, failed to stimulate Francis, and the regimen of the school was extremely harsh. He would write to Adèle that he ‘never knew such an unhappy school as this’, and would later record in his Memories that although he admired Dr Jeune’s ‘exceptional ability and educational zeal’,

the character of the education was altogether uncongenial to my temperament. I learnt nothing and chafed at my limitations. I had craved for what was denied, namely an abundance of good English reading, well-taught mathematics and solid science. Grammar and the dry rudiments of Latin and Greek were abhorrent to me, for there seemed so little sense in them. (Galton 1908: 20)

Medical Training

At the age of 16, in the year of Victoria’s coronation, Francis was sent to the General Hospital, Birmingham, to begin that medical training which it was hoped would see him follow in the Darwin family tradition. His program at Birmingham was intense and the first signs of ill-health through overwork appeared, and it was decided that after a break, and with Darwin’s encouragement—Darwin had just published his Journal of the Voyage of the Beagle—that Francis would interrupt his medical studies to read for a degree in mathematics at Cambridge. He began at Cambridge in October 1840, but in his third year he suffered a ‘nervous breakdown’ the result of a demanding curriculum and a ‘pernicious examination system’ combined with his own ‘obsessive’ tendency to overwork. He gave up reading for mathematical ‘Tripos’ or

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9 A letter written at this time by a visitor to the Galton household reads in part, ‘The youngest child Francis is a prodigy. He is 7 next February, and reads Marmion, [a narrative poem by Sir Walter Scott (1808)] The Lady of the Lake, [a narrative poem by Scott (1810) on the Arthurian legend] Cowper’s, Pope’s and Shakespeare’s works for pleasure, and by reading a page twice over, repeats it by heart. He writes a beautiful hand, is in long division, and has been twice through the Latin grammar, all taught by Adèle’ (cited in Pearson 1914–30, 1: 66).

10 In a letter dated 22 March 1842, Francis tells his father that he is taking 14 different mathematical subjects. ‘The subjects I have read are: (1) Algebra Parts 1 and 111 (2) Algebra part 11 (3) Euclid (4) Trigonometry, Plane (5) Spherical (6) Cross Sections (7) Theory of Equations (8) Newton (9) Differential Calculus (10) Integral Calculus (11) Differential Equations (Statics) (12)– (13)
honours degree and settled for a ‘poll’ or ordinary degree, graduating BA in January, 1844. Years later, in 1888 he would publish a paper ‘Remarks on replies to teachers to questions respecting mental fatigue’ (In *Journal of the Anthropological Institute*, (1888) 18: 157–68) the subject of which, serious prostration and mental overwork in teachers was the consequence in part, of his own life-long episodes of stress-induced ill-health.11

Francis stayed in Cambridge till June 1844 to complete his medical studies, telling his father who was now failing in health that he was getting ‘more and more fond of medicine every day’ and that he was ‘trying some new ways of taking cases, or rather the outlines of cases by lines drawn under each particular symptom and varying according to its severity… in fact like the ordinary plan of statistical charts’ (Pearson 1914–30, 1: 184–85). In October 1844 Samuel Tertius died. The family literally broke-up, with each member going his and her separate way. Francis, aged 23 abandoned medicine, a profession he had in fact been disinclined to enter because of the ‘humbug’ involved in being a general practitioner; and having come into a ‘competent fortune’ he was now and in the future freed from the burden of undertaking any paid employment (Forrest 1974; Keynes 1991, 1995; Pearson 1914–30, 1).12

The Fallow Years

Thus he entered the so-called ‘fallow years’ (1844–49) a period of restless travel in Egypt and Syria (‘without a map and without purpose’) which though not intended to be journeys of scientific investigation nevertheless exposed him to new cultures and customs and honed his powers of observation.13 The Middle Eastern journey also gave him practical skills which would prove to be useful in his future travels (1850–52) in South West Africa (specifically in Damaraland, a region of modern Namibia). These travels are described by Pearson as beginning a period of scientific ‘reawakening’ a time during which his skilful use of surveying and astronomical instruments would led

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11 Keynes (1991) suggests that the symptoms which included headaches, dizziness, an inability to concentrate, palpitations and obsessive thoughts were symptomatic of an anxiety state. Galton wrote in *Memories* that ‘Those who have not suffered from a mental breakdown can hardly realise the incapacity it causes, or, when the worst is past, the closeness in analogy between a sprained brain and a sprained joint’ (1908: 150).

12 According to Peel (1954) Galton’s grandfather Samuel Galton, FRS was worth £300,000 in 1822.

13 The ‘fallow years’ so-called by Karl Pearson (1914–30) because no letters from this period survive to throw light on what the young Galton is thinking and doing at this time.
to the mapping of previously unknown territory; and coincidently, and in somewhat humorous vein, give an early indication of his future interest in human measurement.

**Early Efforts in Human Measurement: Hottentot Ladies**

Writing home to Darwin Galton, he mentions his observation of the shape of ‘Hottentot Ladies,’ and notes that their figures ‘could drive females of our native land desperate’ which phenomenon as a ‘scientific man and as a lover of the beautiful’ he is compelled to measure (Galton 1853: 88; Pearson 1914–30, 1: 231–32). In the book of his journey *Tropical South Africa* (1853) he would record this anthropometric experiment as follows:

I profess to be a scientific man, and was exceedingly anxious to obtain accurate measurements of her shape; but there was a difficulty in doing this. I did not know a word of Hottentot, and could never therefore explain to the lady what the object of my footrule could be; and I really dared not ask my worthy missionary host to interpret for me. The object of my admiration stood under a tree, and was turning herself about to all points of the compass, as ladies who wish to be admired usually do. Of a sudden my eye fell upon my sextant; the bright thought struck me, and I took a series of observations upon her figure in every direction, up and down, crossways diagonally and so forth, and I registered them carefully upon an outline drawing for fear of any mistake. This being done, I boldly pulled out my measuring tape, and measured the distance from where I was to the place where she stood, and having thus obtained both base and angles, I worked out the results by trigonometry and logarithms. (Galton 1853: 88)

His achievements in Africa would win him much public acclaim, the gold medal of the Royal Geographical Society, membership of the Athenaeum Club, and fellowship of the Royal Society. *Tropical South Africa* would be followed two years later by the very successful *The Art of Travel; or, Shifts and Contrivances Available in Wild Countries* (1855). Importantly, the African experience would initiate his entrance into the London scientific scene, and in effect see him become part of the Victorian scientific elite.

**Marriage to Louisa Butler**

At a Twelfth Night party (5 January) 1853, he met Louisa Jane Butler (1822–97) daughter of the Dean of Peterborough. They were married in August, 1853 (Pearson 1914–30, 1: 241). They were both 31. They would have no children, and the marriage—though Galton’s discussion of it in his *Memories* is a modest appraisal—

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14 The *Art of Travel* went into eight editions, the most recent in 2000. It is full of useful and often unusual information for Victorian travellers. It includes advice on dress, medicine, food and shelter, on maintaining animals, signalling and surveying and generally finding one’s way around. Galton suggested that ‘to prevent feet from blistering, it is a good plan to soap the inside of the stocking before setting out, making a thick lather all over it. A raw egg broken into the boot, before putting it on, greatly softens the leather’ (Galton 1855: 19).
appears to later observers to have been an intellectual, rather than romantic one; with Louisa through the diary she kept during her married life, playing the ‘prescribed role as the chronicler of her husband’s achievements’ (Huff 1987: 95). Yet Galton called his union ‘that happy marriage, which lasted forty years’ whose details, he thought, were only of ‘full interest to myself’ and ‘uninteresting to strangers’ (Galton 1908: 154). Though of the institution itself he would write: ‘I protest against the opinions of those sentimental people who think marriage concerns only the two principles; it has in reality the wider effect of an alliance between each of them and a new family’ (Galton 1908: 158). Thus, ‘From birth to death, his social world was, with occasional exception (notably his travels abroad), that of the intellectual aristocracy. His relatives, his friends the clubs and other organisations he joined—none of these took him much outside its ambit’ (MacKenzie 1981: 52).15

At least one writer speculates that Galton’s interest in heredity dates from the time, during his forties, ‘when it was evident that his marriage was likely to prove infertile’. He notes that neither of Galton’s brothers and none of Louisa’s sisters had children, and presumes that the infertility was genetic (Forrest 1974: 85). Another argues that Galton’s hereditarian concerns were spurred by the awareness of the indifference of his scholastic performance at Cambridge. ‘He was always surpassed by at least a few of his peers’, and with his powerful desire for success and his privileged social background, he could not easily attribute his relative failure to volitional or environmental deficiencies…. it must have confirmed his suspicion that he had failed because he lacked the innate gifts necessary for great success. (Fancher 1983a: 232)

The same author cites in support of this possibility the fact that at the age of 27 Galton had consulted Mr C. Donovan, chief phrenologist at the London Phrenological Institute ‘for a professional reading of his aptitudes and character’ (Fancher 1983a: 232). Donovan had determined ‘in a shrewd assessment undoubtedly based on more than Galton’s cranial measurements’ that minds such as his ‘were not distinguished by much spontaneous activity in relation to scholastic affairs’ and that ‘There is much enduring power in such a mind as this—such that qualifies a man for “roughing it” in colonising’ (Pearson 1914–30, 1: 157; Forrest 1974: 37; Fancher 1983: 232). Mr Donovan’s examination revealed a head measurement of 22 inches and a ‘sanguine

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15 Ash (1983: 352) comments that during the nineteenth century the university emerged in Germany as a seat of research and teaching with important consequences for the development of psychology. In Britain however: ‘philosophical and scientific discussion continued to take place among an elite that perpetuated itself by the cultivation not so much of academic credentials as of social virtues. The reform of secondary and university education from which the English “public” schools arose… did not end this <em>genteel tradition</em> but revitalised it’ [emphasis added].
temperament’. Thereafter Francis Galton associated intelligence to some extant with the possession of a large head.16

The Influence of Social Milieu

It is possible that Galton’s interest in heredity and the development of ability was a consequence of a number of forces acting together. Some personal and some the logical outcome of his extensive scientific interests. After his African ‘campaign’ this included an increasing interest in geography and ‘the scientific study of the weather’; resulting in the recognition of the phenomenon he was to name the ‘anti-cyclone’, and the eventual development of the first weather-map which was published in The Times, 1 April 1875.17 It is also as likely that his ideas were ‘in part embedded in the prevailing social, political, and economic forces operative in nineteenth century Britain’ and that this ‘perspective of reality may be traced, in part to the social infrastructure of the time’ (Buss 1976: 51). For this reason, it may be worthwhile to consider both the notion of ‘milieu’ as it applies to the development of ideas and the nature of the ‘milieu’ in which Galton’s ideas developed.

Milieu and Environment

Edwin Boring writing in 1950 discussed two traditional approaches to the understanding of progress in history: ‘the Great Man theory of history’ which focused on the achievements and influence of single individuals; and the process of historical change which focused on the Zeitgeist or ‘spirit of the times’ which took into consideration the ‘mind-set’ and the conditions of life prevailing in a culture at any particular time. Using Francis Galton as both one of his ‘Great Men’ of science and at the same time referring to Galton’s own interest in the generational transmission of superior intellect, Boring considered that ‘creative’ progress in the sciences is the result of an integration of the work of ‘great men’ (personal force [similar to this idea in Carlyle]) and the times in which they lived (social force). More recently, interest and consequently the focus of attention, has tended to fall on the individual, so that Robert

16 Pearson (1914–30, 2: 157) suggests that Galton’s later interest in head measurements was the result of his early exposure to phrenology. Francis first had his head examined by ‘an Cambridge examiner fond of phrenology’ when he was a student at the King Edward School. Galton’s head was so impressive that it warranted a second inspection. Even as an infant the conformation of his head was such that Robert Owen ‘the Lanarck Utopian… predicted from its peculiarity that he would be an uncommon character’. However, in a letter written in 1906, and in the wake of the physiologists recent research into cerebral localization, Galton expressed some doubt about the usefulness of head size in phrenology.

Albert (1992: 8) is able to write in his paper ‘A developmental theory of eminence’ that:

One cannot minimize the influence of work environment or cultural and historical factors upon creative behavior… but it seems that in the final analysis it remains the individual, working either alone or with a few others, who does the work and performs creatively. That there are outside as well as internal influences at work goes almost without saying, but it does not go far enough in understanding why and how one person will be creative and others, ostensibly as gifted and talented will not. For all of the varied attempts to understand the nexus of influences upon individuals of different degrees of achievement, starting with Galton (1869), without focusing upon each one of them individually one overlooks the more essential personal elements in the achievement of eminence: one person’s specific decisions, protracted skilled efforts, and long-term performances that underlie lifetime productivity.

The stress on individuality here may itself highlight a peculiar North American way of understanding the world and human functioning; an aspect of the American Zeitgeist in a century they claim philosophically and historically their own. The suggestion has been made in another contribution to Albert’s edited book that Galton’s observation in English Men of Science that certain parts of Britain had been ‘very deficient in aboriginal science’ was largely the result of a Puritan brain drain: of those scientists emigrating to America! (Gray 1992).

Nevertheless, as Nisbet (1982) and others—for example Currie (1974: 9) who makes the argument on ideological grounds that ‘humanity needs genius to rescue it from alienation’ [emphasis in original] show—genius is a complex issue. No single line of inquiry is entirely satisfactory. An integrative approach is warranted and Nisbet (1982) argues that too little attention has been given to the discussion of social and cultural heredity as a factor in the creation of exceptional talent. Awareness of the relationship is apparent from classical times. The Greeks reflect this intuitively through many of their myths of creation and human cultural development as discussed in Chapter 3. Nisbet (1982: 449) writes of the link between cultural and family transmission:

Craft and family have been linked for so long in human history as to give family unique importance as the school of genius. Galton made no mistake in stressing the high correlation of individual distinction and family line. He simply neglected one very important type of heredity—social or cultural heredity. Through the genes family transmits one set of resources from generation to generation, and these should never be discounted no matter how difficult they are to encapsulate in definition. But through tradition, custom, social role, accumulated knowledge, and social class the family transmits an equally important set of resources, those of family culture. Emulation, considered by observers from Longinus to Goethe to be vital in the development of great talent, has no better setting than the family, taking it in an extended sense. Many a mind of perhaps lesser genetic endowment has been brought to high point by exposure from infancy to evocative and stimulating milieu in family.

Nearly all the examples given in this thesis reflect the ideas presented by Nisbet (1982) in this one extract from ‘Genius and milieu’. The Darwin/Galton family is a
prime example of an enriched setting conducive to high performance. The relationships which create this sociogram include not only immediate family but also Thomas Carlyle, A. R. Wallace, Herbert Spencer and T. H. Huxley, and a host of lesser-known individuals who were connected either through family, through social or through scholarly and academic alliance. The notion of an enriched social environment as conducive to progress is part of Spencer’s sociology in the conception of civilization growing from simple to complex social arrangements as well (see Chapter 6). It hovers in the background of the ideas of English eugenists—after all their target was invariably those identified to be bereft of such an environment: the residuum or urban poor (see Chapter 7). It is also an idea espoused by European educationists like Uno Cygnaeus and Friedrich Fröbel, who created methods of instruction which fostered the idea that human physical and intellectual development could best take place in a putatively creative environment, the best known of which is the kindergarten (see Chapter 9).

Nisbet (1982: 444) makes the distinction between milieu and environment in which environment ‘whether physical or social, connotes something large and altogether external to the individual’ and milieu, which is conceptualized as ‘smaller, more personal, the product of those who work in it’. He attempts to place the discussion of genius in relation to this distinction noting in particular the historical and contextual evolution of the notion.

**Etymological Origins of the Word Genius**

For instance, he suggests that the idea ‘genius’ was qualitatively different from talent had become part of the European mindset by the time of the *philosophes*. Prior to this period genius had simply been a synonym for a talent or skill brought to a high degree of perfection.

In her discussion of the etymological origins of the word genius, Penelope Murray (1989: 2) also draws attention to the fact that the joining of the word genius to the notion of creativity and originality begins in the eighteenth century, and that before this time genius ‘had a variety of different meanings, none of which correspond to our modern usage of the term’, particularly, that aspect of the term as adopted by Carlyle and Galton, which suggests that only a select few are so endowed.

She continues, as does Virginia Muller with respect to the word perfection, to tease out the meanings given the word genius as initially given in the Oxford English Dictionary. ‘Three’ she observes ‘are of particular importance’:(1) genius as attendant
spirit; (2) genius as characteristic disposition or natural inclination; (3) genius as natural ability or innate endowment.

The first derives directly from the Latin *genius*. In Roman religion the *genius* was originally the spirit of the *gens* (the family), whose cult like the *Lares* and *Penates*, was associated with the household... but by the time of our first literary references in Plautus... the genius appears to be a kind of tutelary spirit embodied in each man, not quite like him, but intimately connected with his personality. Like the Greek *daimon*, the Roman genius was born with each man and accompanied him throughout his life... Why two brothers should have completely different personalities and lifestyles, Horace says, only *genius* knows, “the companion which rules the star of our birth, the god of human nature, mortal for each individual, varying in countenance, white and black.” This spirit or deity was worshiped by every man on his birthday, the modern birthday cake being a vestige of the offerings... made to his genius on the anniversary of his birth. (Murray 1989: 2–3)

The Romans famously extended this idea of an attendant spirit to groups of people (the *genius populi Romani*) and to places (*genius loci*) including cities and towns, as well as streets and marketplaces, a practice which remained intact in Europe till the eighteenth century (Murray 1989).

However the second and third meaning of *genius* as given in the *OED* stem from the Latin word *ingenium*, meaning both ‘natural disposition’ and ‘innate ability’ a sense differing from the Roman *genius*. In modern translations they equate with the word French ‘esprit’ and English ‘wit’ or ‘genius’ meaning a quality which ‘cannot be acquired by learning’ and is not a ‘quality which everyone possesses’. That is, a ‘special’ quality with which an individual is born. Already in the sixteenth century the word *ingenium* is becoming the accepted equivalent to genius in the modern sense (Murray 1989: 3).

Nevertheless, an argument can be made for the survival of the older meaning within the newer, even in the work of Galton. After all as Nisbet (1982) explains, Galton’s emphasis was always on the hereditary transmission of certain faculties from generation to generation, through the family. The connection of the notion of a family ‘genius’ in the old Latin or Roman sense remains. Galton (1908) refers to this when he speaks in glowing even boasting terms of the fact of his relationship to his grandfather Erasmus Darwin. The spirit of this poetic scientist is alive in Galton’s genealogy and by implication informs his intellectual development.

The connection between *genius* and populace and place remains along with the idea of special qualities vested in the totality of a people, as intimated in the statement made by Ewert Gladstone (1878: 569) that ‘The sentiment of empire may be called innate in every Britain’. It is maintained in the idea of the ‘American Century’. It is evident in this larger sense as discussed by Nisbet (1982) in the German belief in a broad racial pool capable of breeding genius. And it is contrary to Nieitzche’s conviction of the
'preposterousness of expecting the exceptional (which alone is valuable) to proceed from someone who leads a model bourgeois existence (Murray 1989: 6).

By-and-large, apart from a few minor eccentricities, the great Victorian scientists did live close to a model middle-class existence. It could be argued that the growth of a literate middle-class was a necessary condition for the dissemination of those scientific and even pseudoscientific ideas which were to become so influential in the new century. While both Fontenelle and Condorcet had played to an audience of aristocrats, Victorians occupied the parlour and the meeting room.

The New Notion of Genius

It was the eighteenth-century philosophes Nisbet (1982) suggests, who had something to do with the ‘puffery of the word’ because rather than regarding themselves as ordinary philosophers, scientists or scholars, they regarded themselves as geniuses: men of surpassing mental powers, capable of influencing the state and changing history. Nisbet (1982: 441) singles out Condorcet, who:

...demonstrated in his outline of human progress, the world’s creative work had always been done by geniuses. It is, he declared, the mission of institutions to tyrannize in the long run, to inculcate superstition and idle dogma. From such states only geniuses can liberate.

Condorcet who had been described by contemporaries as distinctly ‘irreligious’ invoked in his utopian writings a time in the future when ‘the absurd prejudices of superstition will have ceased to corrupt and degrade the moral code by its harsh doctrines instead of purifying and elevating it’ (Condorcet [1795] 1955: 1989; Cazes 1976). He assumed—exhibiting, it could be argued, an intolerance of frailty seemingly at odds with the presumed humanism of his philosophy—that by then:

...men will know that if they have a duty towards those who are not yet born, that duty is not to give them existence but to give them happiness; their aim should be to promote the general welfare of the human race or of the society in which they live or of the family to which they belong, rather than foolishly to encumber the world with useless and wretched beings. (Condorcet [1795] 1955: 189)

Nisbet (1982) also draws attention to a concept which in the late eighteenth century became a ‘cornerstone’ of the Romantic movement in the arts in Germany and (to a lesser extent in) England: that of the artistic genius as one ‘endowed with semi-divine forces of creation’; and another notion particularly strong in the German states, of ‘peoples or races endowed with special hereditary, creative powers, and forming the necessary genetic sources of individual geniuses’ (Nisbet 1982: 441). To a certain extent Carlyle, who was strongly influenced by German Romanticism through its literature entertained such a concept in the writing of On Heroes and Hero-Worship in
which he lauded great men, who were, in his judgement ‘witness to the fact that the
divine [variously expressed] manifests its power in human beings’; and succumbed in
his later biographical writing to a view of the great man in history as a Machiavellian
creature for whom the end justified the means (Carlyle [1841] 1885; Bernbaum 1949:
295). A view which to some extent effected his later literary reputation, as it was seen as
a harbinger of, and construed in the light of twentieth century fascism.

The Superior Being

Nisbet (1982: 442) argues that the ‘romantic conceits’ of a superior being ‘might well
have been blown away before the end of the nineteenth century if it had not been for the
biological imprimatur put on them by Galton in *Hereditary Genius*.18 The
consequence he suggests, of Galton’s exposure to his cousin Darwin’s *On the Origin
of Species by Means of Natural Selection, or the Preservation of Favoured Races in
the Struggle for Life* (1859), which Nisbet (1982: 442) argues, allowed Galton to
transfer the concept of natural selection and inheritance from the animal and plant
kingdom to ‘theories of genius as it manifests in the human species’. This in itself
constituted an imaginative leap because Darwin had ‘said very little about the
development of humans’ in *Origin of Species* nor had he ‘developed anything like a
quantitative model of evolutionary change’ (Porter 1986: 134). For Galton, *Origin of
Spencies* acted both as a vehicle of intellectual liberation and as a springboard for his
own scientific enterprise, a situation he fully acknowledged in his biography:

The Publication in 1859 of the *Origin of Species* by Charles Darwin made a marked
epoch in my own mental development, as it did in that of human thought generally.
Its effect was to demolish a multitude of dogmatic barriers by a single stroke and to
arouse a spirit of rebellion against all ancient authorities whose positive and
unauthenticated statements were contradicted by modern science. (Galton 1908:
287)

After considering the difficulties which *Origin of Species* had experienced ‘both in
the press and in the pulpit’ he claimed:

On my part, however, I felt little difficulty in connection with the *Origin of Species*,
but devoured its contents and assimilated them as fast as they were devoured, a fact
which perhaps may be ascribed to an hereditary bent of mind that both its illustrious
author and myself have inherited from our common grandfather, Dr. Erasmus
Darwin.

I was encouraged by the new views to pursue many inquiries… which clustered
round the central topics of Heredity and the possible improvement of the Human
Race. (Galton 1908: 288)

18 In the preface to the 1892 edition to *Hereditary Genius* Galton expresses some regret for its title
which he believes is confusing to the general public.
Darwin’s theories ‘opened up an intellectual continent more promising and attractive to the explorer Galton than Africa had been’ (Stigler 1986: 267).

Darwin (unlike Erasmus Darwin and Lamarck) denied that there existed some vital force that propelled an organism to higher and more perfect forms. Evolution occurred through the external mechanism of selection, not through the internal decision making abilities of human kind, a point he made clear in the final pages of *The Descent of Man* ([1871] 1883):

Man may be excused for feeling some pride in having risen, though not through his own exertions, to the very summit of the organic scale; and the fact of his having risen, instead of being placed their aboriginally, may give him hope for a still higher destiny in a distant future. (Darwin [1871] 1883: 619)

**Progress a Reality**

‘Progress was a reality… but it occurred in spite of human endeavour. It was an automatic process mediated, as Herbert Spencer put it, by the “survival of the fittest”’ (Mason 1962: 420; Spencer 1851; 1857). It was evidenced by the success of the most adaptable within a competitive environment, an idea that Malthus (1798; 1830) had already expressed in a ‘crude’ biological form in his vision of a society of individuals competing with each other for scarce material resources. However the pessimism invoked by Malthus in the early industrial period was in turn mediated by the optimism consequent on the increasing success of that same industrialism, and in political, economic and social terms, the success of liberalism, capitalism and democracy (Mason 1962; Buss 1976).

By mid-century, with political and economic freedom, came an attendant pluralism, and an environment that stressed individual responsibility and enterprise (Buss 1976). Popularly, a book like Samuel Smiles’s *Self-Help* (1859) celebrated this self-reliance. Conceptually, Darwinism appeared to mirror society, and as an idea it was adaptable and easily transferable to various disciplines, quickly being taken up by the sciences and non-sciences alike. Particularly in anthropology and in Spencer’s sociology (Mason 1962). Notably it was also as a useful subject for novelists. William Winwood Reade (1838–75) in *The Outcast* ([1875] 1975: 7) wrote of a religious young man who ‘falling into a deplorable condition’ commits suicide after reading both Malthus’s *Essay on Population* ‘which had made him doubt the goodness of God’ and Darwin’s *Origin of Species* which only served to confirm the Malthusian view of society (Reade [1875] 1975: 4). Reade like Galton was an African explorer and anthropologist. He also served as a war-correspondent reporting the Ashanti war for *The Times* in 1873 (Sutherland 1989). In 1872 he had published *The Martyrdom of Man* ‘a hard-boiled

Louisa Galton would remain a committed Christian to the end of her life (Forrest 1974: 84). A. R. Wallace who had since his youth ‘looked upon a socialistic organization of society… in the form advocated by Robert Owen as an ideal of the future’, would after 1865 become increasingly interested in spiritualism (Wallace 1905, 2: 266; Kottler 1974). Many questions about the ‘phenomena of life’ had been left unanswered by evolutionary theory he wrote in his autobiography. ‘Whatever light we do possess is from a source which Spencer and Darwin neglected or ignored’ (Wallace 1905, 2: 24). Galton’s ‘religious belief,’ as revealed in the extracts from his *Memories* (1908) ‘did not survive the experience’ of his exposure to *Origin of Species* (Galton 1908: 287; Forrest 1974: 84; Keynes 1993: 14). He would grow in his scientific scepticism and personal agnosticism. Unlike A. R. Wallace, he held no faith in the possibility of improving society through ‘socialistic experiments’, believing that these would ultimately be ‘ineffective owing to the moral and intellectual incompetence of the average citizen’ (Pearson 1914–30, 3A: 90 [emphasis in original]). Improvement would only come about when society understood the laws that govern heredity and environment, and could use this knowledge to improve the ‘heritable powers of man… in the furtherance of human evolution’ (Galton [1894] cited in Pearson 1914–30, 3A: 92).

**Controlling the Destiny of Society**

He admitted that historically ‘Deep sentiments and prejudices, habits and customs’ were ‘more or less entwined with established religion’ which functioned to lend stability to a particular society or nation, and that it would be unwise to destroy this stabilizing force (Galton [1894] cited in Pearson 1914–30, 3A: 88). At the same time, it might also be possible and even desirable for society to apply the laws of heredity in a systematic way to control the design and destiny of that society. To do so would serve ‘to direct the emotions and desires of a nation toward an ideal object, recognized as rightly paramount over all selfish objects of desire’ (Galton [1894] cited in Pearson

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1914–30, 3A: 92–3). The ‘goal of Galtonian teaching’ according to Pearson (1914–30, 3A: 93) was the ‘conversion of the Darwinian doctrine of evolution into a religious precept, a practical philosophy of life’.

Stocking (1987: 145) notes that ‘it seems clear enough that Darwin’s published work lent itself to “social Darwinist” interpretation… just as his personal opinions tended in the same direction’. A. R. Wallace in a letter to Darwin dated 2 June, 1866, discussed what he thought was the cause of general misunderstanding and misinterpretation of his colleague’s premise in *Origin of Species*. He told Darwin that he thought that the problem arose ‘almost entirely from your choice of the term Natural Selection… and also to your so frequently personifying nature as “selecting” as “preferring” as “seeking only the good of the species,” etc., etc.’ He added:

To the few this is as clear as daylight, and beautifully suggestive, but to many it is evidently a stumbling block. I wish therefore, to suggest to you the possibility of entirely avoiding this source of misconception in your great work (if not now too late), and also in any future editions of the “Origin,” and I think it may be done without difficulty and very effectually by adopting Spencer’s term… “Survival of the Fittest.” This term is the plain expression of the fact. (Wallace 1866, cited in Marchant [1916] 1975: 141; see also Darwin cited in Darwin [1888] 1969: 45–6)

**Galton’s Scientific Milieu**

Since Herbert Spencer, along with biologist Thomas Henry Huxley (1825–95) had by the 1860s become part of Galton’s circle of acquaintances, this scientific ‘milieu’ provided the incentive for him ‘to move progressively from a study of earth, its climate and the best modes of travelling it, to humans who inhabit it, to study their physical and psychological qualities’ (Peel 1954: 11). Or as Pearson puts it, more precisely, for his thoughts to turn in ‘a narrower sense from cosmography to biology—from geography and meteorology to anthropology and psychology’ (Pearson 1914–30, 2: 20).


21 There were writers in the 1860s, like Walter Bagehot, who expressed views in books with suggestive titles like *Thoughts on the Application of the Principles of “Natural Selection” and “Inheritance” to Political Society* that could be interpreted as ‘social Darwinist’ but which were in fact more Lamarckian than Darwinian. And Galton’s work in the wake of Darwin, more properly belongs to the end of the nineteenth century when a changed set of social conditions prevailed in England, and the ‘eugenics movement’ itself can be regarded as part of that change.

22 Because Spencer coined the term ‘survival of the fittest’ (in *Principles of Biology* [1864] Vol. 1: 444), and applied it to Darwin’s theory, it has been assumed that his support of the idea of social struggle was a reading of Darwin. Spencer was an advocate of free-market economics (laissez-faire) and based his view of society on the non-interventionist policies advocated by laissez-faire. This supposed that the less able and less competitive in society would be less successful and would naturally fall by the wayside. No action by the state was necessary for this to come about. The basis upon which he is regarded as a ‘social Darwinist’—in the sense of that term connoting the elimination of the ‘unfit’ through state intervention—is thus confusing (Bowler 1990). Before the publication of the evolutionary theory of Darwin and Wallace, Spencer had supported the Lamarckian notion that biological change is caused by the inheritance of acquired characters, and even after continued to believe that change came about through the action of external forces.
Precisely as the milieu effected the individuals who were part of it, so did ‘their electric interactions with one another effect their milieu—help create it, shape it, and enhance it’ (Nisbet 1982: 444). Nevertheless, the ‘environment’, understood as that which lies outside the individual cannot be ignored entirely.

The Importance of Fact

In Victorian Things (1990: 54) Asa Briggs, writing of the Great Exhibition of 1851, observes that:

The Crystal Palace… with its 293,655 panes of glass, its 330 standardized iron columns and its 24 miles of guttering, was… not just a building to house exhibits but in itself a symbol.

‘The regularity and severity of its design’ he continues, separated it from the disorderly growth about it. An attempt was also made to impose internal order on the multitude of exhibits on display, objects which were classified, catalogued, illustrated, commented upon (even by people who had not seen them)—often controversially, sometimes satirically. Classifying, itself controversial, was a favourite as well as necessary Victorian preoccupation, like naming and listing if only because it made “general propositions possible”, and by identifying “grand divisions” it drew attention to “gradations” within them. (Briggs 1990: 54)

Humphrey House (1966: 224) notes that it was by ‘patient accumulation of fact that the Victorians domesticated mystery’; and their tendency toward ‘literalness of mind’ heralded the ‘decay of the great Romantic tradition, the stifling of its grandeur’ which was brought about ‘partly by the narrow business manners of a rising bourgeoisie, [and] partly by the pre-eminent insistence on the importance of fact’. Urry (1993) surveying the development of field methods in nineteenth century anthropology cites the words of Richard Cull, Secretary of the Ethnological Society, of which Galton was member. Cull wrote in a preface to the Manual of the Society: ‘We are seeking facts, and not inferences; what is observed and not what is thought’ (Cull 1856: 119, cited in Urry 1993: 19).

Victorian Anthropology

Anthropologist Mary Cowling (1983: 461) writing on the work of the artist William Powell Frith (1819–1909) and particularly on his highly detailed paintings of modern life Derby Day (1858, The Tate Gallery) and The Railway Station (1862, Royal Holloway College) (Fig. 7)—a very different railway picture to Turner’s Rain, Steam

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and Speed—considers that Frith ‘might be referred to informatively, as an anthropologist’.  

She observes that Victorian anthropology was as concerned with domestic (English) populations as it was with those of distant civilizations, and that this interest did not confine itself to the study of the physical aspects of humanity; ‘what that physical nature was taken to indicate of the moral man was the overriding consideration’ (1983: 461 [emphasis in original]).

A ‘connection between the two was presupposed, and the anthropologist accepted… the task of clarifying that connection’ (Cowling 1983: 461). She suggests that the choice of Epsom Downs and a railway station (Isambard Kingdom Brunel’s Paddington Station) was no accident because these ‘were frequently recommended as ideal places for the anthropologist to practice his observations’ (Cowling 1983: 462). Such observations were heavily influenced by the acceptance of both physiognomy and phrenology; in vogue at a time when ‘the human face and figure were invested with a special significance which they no longer have’ (Cowling 1983: 461). Further, she acknowledges that even before Origin of Species made its appearance ‘evolutionary theories of various kinds were popular’ and:

It was believed that human kind was constantly evolving, a process thought to be observable from one generation to the next, and at different degrees and rates according to what was thought of as the “quality” of individual organization, some improving, others degenerating, according to that original quality, and to the lifestyle adopted, virtuous or vicious as the case may be. (Cowling 1983: 464)

The success of a painter like Frith and a novelist like Dickens depended to a great extent on their mastery of the depiction of ‘type’. That is, the degree to which their painted or written characters matched a distinct physical and moral entity identifiable according to commonly accepted physiognomical expectations. Thus, within the crowd in The Railway Station, the Victorian observer could easily recognize the different individuals and also classes of individuals according to these rules; however, without the exaggeration allowed in illustration and cartoon, such as Cruikshank’s illustration of the ‘Jewish type’ Fagin in Dicken’s Oliver Twist, alongside the equally well-drawn word-picture of the ‘criminal-type’ Bill Sykes in the same work. The criminal physiognomy in particular, was of interest to the Victorians and was always represented by a countenance which was:

In some way disproportionate or irregular. Any deformity could be incorporated into the system, but the one most frequently cited is the extreme form associated with low development, that is a large jaw and face in relation to the higher faculties of

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24 Frith’s panoramic ‘paintings of modern life’ also includes Life at the Seaside—Ramsgate Sands (1851). In 1914 the art critic Clive Bell writes critically of the type of painting produced by Frith. While noting its popularity he also claims that ‘with the perfection of photographic processes and of the cinematograph, pictures of this sort are becoming otiose’ (Clive Bell 1914, cited in Christopher Harvie, Graham Martin and Aaron Scharf eds. 1970. Industrialisation and Culture: 1830–1914 (London: Macmillan): 259.
Due to copyright restrictions the reproduction of William Frith. The Railway Station (details below) has been removed from the thesis and can be seen in Christopher Wood. Victoria Panorama: paintings of Victorian Life (London: Faber (1990): 208-9

mind as represented in the forehead and skull, indicating a predominance of the senses, and suggesting, at least, a disposition toward crime. (Cowling 1983: 471)

The Impetus Toward Classification

The impetus toward classification and the acceptance of hereditarian ideas, coupled with the introduction of approaches to society drawn from nascent and emerging disciplines like anthropology, sociology and psychology, took hold of the scientific imagination during the Victorian era. A physician, John Langdon H. Down (1828–96) suggested the ‘possibility of making a classification of the feeble-minded, by arranging them around various ethnic standards’ (Down 1866: 260). Using the terminology current in medical circles at the time, he had noticed that certain ‘idiots’ and ‘imbeciles’ could be ‘fairly referred to one of the great divisions of the human family other than the class from which they have sprung’ (Down 1866: 260). They bore a striking resemblance to members of the ‘great Mongolian family’, and he deduced that ‘this type of idiot appearing as the child of Europeans, could only be the ‘result of degeneration, never the result of accidents after uterine life’ (Down 1866: 261). He continued, arguing that ‘idiots’ of this type ‘possessed considerable power of imitation’ and were amenable to training arguing that ‘The improvement which training effects in them is greatly in excess of what would be predicted if one did not know the characteristics of the type’ (Down 1866: 261–62).

The Bad Streak

In contrast, a contemporary psychiatrist Henry Maudsley (1835–1918) developed a pessimistic and deterministic psychiatric philosophy ‘essentially based on notions of linked moral and physical degeneration and hereditary taint’ (Danzinger 1982: 139), a philosophy that stressed the ‘the powerlessness of outer events to influence individual human destiny’ (Skultans 1976). "No training in the world' he wrote in 1874.

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25 The fact that contemporary critics judged Frith’s physiognomical depiction of the aristocratic members of the group to fall short of the standard expected indicates that this ‘way of seeing’ was widely shared by artists, critics and the community (Cowling 1983). The notion that appearance betrayed the inner state has a long history in painting. The use of the new medium of photography for both diagnostic and therapeutic purposes was advanced by Dr. Hugh Diamond, Resident Superintendent of Female Patients at Surrey County Lunatic Asylum from 1848 till 1858. A pioneer of photographic technique, he became secretary of the Photographic Society in 1853 and for many years was editor of The Photographic Journal. See S. L. Gilman 1976. The Face of Madness: Hugh Diamond and the Origin of Psychiatric Photography (New York: Brunner/Mazel).

26 The theory of ‘degeneration’ was developed by Benedict A. Morel (1809–73) in 1839 ‘in an attempt to work out a theory of disease that would make more significant the somatic approach in medicine and psychiatry’. It was strongly influenced by the phrenologists Spurzheim and Gall, and the French physiologists, including Cabanis. The theory of degeneration presented the idea that ‘wilful sins committed in one normal generation would produce nervousness in the next, insanity in the third, idiocy in the fourth, and, finally extinction’ (see Carlson & Dain 1962 [emphasis added] ). Morel coined the term dèmence-precoce (dementia praecox, literally meaning premature dementia: the old term for schizophrenia), which he believed to be a hereditary illness. He greatly influenced the
would elicit grapes from thorns or figs from thistles, in like manner no mortal can transcend his nature; and it will ever be impossible to raise a stable superstructure of intellect and character on bad natural foundations. (Maudsley 1874: 20)

In 1908, in the year that Galton published his *Memories* Maudsley wrote the following:

Everybody is what he typically is because his progenitors were what they were, like having begotten its like; he inherits the form, traits and qualities of the stock from which he proceeds.

Always a basic fault in the stock is liable or likely to appear in one or another offspring of parents who themselves have shown no sign of it; the bad streak, Alphaeus-like, having gone under for a while to come again to surface in the stream of descent. No one, be his aims and ambitions, his regrets and resolves, his triumphs and mishaps what they may, evades the fate of his organization. (Maudsley 1908: 1–2)

From a different perspective, the Liberal statesman William Ewert Gladstone (1809–98) could suggest that the tendency toward empire-building was itself an inherited trait highly developed in the British people:

The sentiment of empire may be called innate in every Briton. If there are exceptions, they are like those of men born blind or lame among us. It is part of our patrimony: born of our birth, dying only with our death; incorporating itself in the first elements of our knowledge, and interwoven with all our habits of mental action upon public affairs. (Gladstone 1878: 569)

It has even been suggested that at the heart of Darwin’s theory is ‘the rhetoric of the British colonial empire’, and that ‘The nations which typify natural selection are New Zealand and Australia, where the natives—plants, animals and humans—have been “beaten” by Europeans’ (Cannon 1968: 163). The ‘mere fact of imperial domination lent credence’ to the idea of the superiority of the British race long before Social Darwinism came on the scene to lend it an air of scientific legitimization (Harris 1993: 6).

27 Turner (1988: 571) in writing of Maudsley creates a picture of a complex figure whose pessimism and view of ‘individuals as sliding inevitably, evolutionarily towards personal or family extinction’ is said to have shocked even his contemporaries.
A Man of Order

Francis Galton ‘was a man of order’ who ‘displayed a special interest in subjecting the irrational and inexplicable to scientific principles’, and he shared with others of his time the idea that it is possible to be pro-active vis-a-vis the organization of society (Porter 1986: 137). It is meaningful therefore that Karl Pearson (1914–30, 2: 87) himself uses the language of imperial and military order to draw attention to the fact that the ‘four fundamental treatises’ in which Galton set out to discuss the ‘inheritance of mental aptitudes in man’ was surrounded by a ‘whole swarm of memoirs and minor researches’ grouped ‘like flotillas of destroyers about a battle-fleet’. All designed to make explicable human mental and moral development in aid of race improvement.

The Statistical Efficacy of Prayer

Often Galton’s the work on hereditary transmission is curiously linked, in subject and intent. Hereditary Genius was followed by an article published in the Fortnightly Review in August, 1872, called ‘Statistical inquires into the efficacy of prayer’. In it Galton sought to take an ‘irrational’ phenomenon and subject it to scientific scrutiny. ‘A scientific reasoner’ he wrote, ‘will scrutinize each separate experience before he admits it as evidence, and will compare all the cases he has selected on a methodical system’ (Galton 1872: 125). While finally accepting the comfort that the act of prayer might bring to the individual in times of need: ‘the mind may be relieved by the utterance of prayer’ (Galton 1872: 135), on an objective level, prayer did not produce the practical results claimed for the practice. For example, he noted that it had been customary to pray for the life of the sovereign in every Protestant and Catholic state. He asked whether this prayer had any efficacy. Using Dr. William Guy’s statistics comparing the mean age (at death) of sovereigns with that of other classes of persons, he was able to show that ‘The sovereigns are literally the shortest lived of all who have the advantage of affluence’ (Table 1).28 He goes on to cite numerous instances of the failure of prayer to benefit the prayerful. He takes the case of Divines (clergyman) whose statistics he had obtained during the writing of Hereditary Genius, and supposed that while they might on occasion plead for their own physical as well as spiritual health, their life-expectancy was nevertheless similar to that of doctors and lawyers. Furthermore he argued:

If prayerful habits had influence on temporal success… insurance offices… would long ago have… made allowance for it. It would be most unwise, from a business

point of view to allow the devout, supposing their greater longevity even probable, to obtain annuities at the same low rates as the profane (Galton 1872: 134).

Table 1.

MEAN AGE ATTAINED BY MALES OF VARIOUS CLASSES WHO HAD SURVIVED THEIR 30TH YEAR. FROM 1758 TO 1843. DEATHS BY ACCIDENT OR VIOLENCE ARE EXCLUDED

<table>
<thead>
<tr>
<th>CLASS</th>
<th>NUMBER</th>
<th>AVERAGE</th>
<th>EMINENT MEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Members of Royal Houses</td>
<td>97</td>
<td>64.04</td>
<td>66.42</td>
</tr>
<tr>
<td>Clergy</td>
<td>945</td>
<td>69.49</td>
<td>66.51</td>
</tr>
<tr>
<td>Lawyers</td>
<td>294</td>
<td>68.14</td>
<td>67.07</td>
</tr>
<tr>
<td>Medical Profession</td>
<td>244</td>
<td>67.31</td>
<td>67.31</td>
</tr>
<tr>
<td>English Aristocracy</td>
<td>1,632</td>
<td>67.31</td>
<td>67.31</td>
</tr>
<tr>
<td>Gentry</td>
<td>1,632</td>
<td>70.22</td>
<td></td>
</tr>
<tr>
<td>Trade and commerce</td>
<td>513</td>
<td>68.74</td>
<td></td>
</tr>
<tr>
<td>Officers in the Royal Navy</td>
<td>366</td>
<td>68.40</td>
<td></td>
</tr>
<tr>
<td>English literature and science</td>
<td>395</td>
<td>67.55</td>
<td>65.22</td>
</tr>
<tr>
<td>Officers in the Army</td>
<td>569</td>
<td>67.07</td>
<td></td>
</tr>
<tr>
<td>Fine Arts</td>
<td>239</td>
<td>65.96</td>
<td>64.74</td>
</tr>
</tbody>
</table>


Galton argued at end that while there were many persons of ‘high intellectual gifts and critical minds’ who looked upon it as ‘axiomatic’ that they had the ability to commune with God—and he did not deny that this communion ‘must necessarily rejoice and strengthen the heart, and divert it from petty cares’—there were those who on conscientious grounds were sceptical. However, they could also rejoice, for they could:

Dwell on the undoubted fact, that there exists a solidarity between themselves and what surrounds them, through the endless reactions of physical laws among which the hereditary influences are to be included. They know that they are descended from an endless past, that they have a brotherhood with all that is, and have each have each his own share of responsibility in the parentage of an endless future. (Galton 1872: 135)

Hereditary Talent and Character

In 1865 Galton had published a two-part article in *Macmillan’s Magazine* called ‘Hereditary talent and character’. In it he stated that in investigating the hereditary transmission of talent, it should be borne in mind that little was as yet known about the inheritance of physical characters.
We know to a certainty that the latter exist, though we do not thoroughly understand their action. The breeders of our domestic animals have discovered many rules by experience, and act upon them to a nicety. But we have not advanced, even to a limited extent, in respect of the human race. (Galton 1865: 157)

Making use of a list of eminent men selected on the basis of their inclusion in the biographical dictionaries *Dictionary of Men of the Time* and Phillips’s *Million of Facts*, he proceeded to demonstrate by ‘analogy’ from ‘brutes’ to humankind, that hereditary plays a greater role than does environment in the transmission of high ability. He wished to show that mental like physical ability is transmitted from parents to offspring, and that clever parents produce clever children. He could not prove this by analogy and turned to statistics to support his argument:

All I can show is that talent and peculiarities of character are found in the children, when they have existed in either of the parents, to an extent beyond all question greater than in the children of ordinary persons. (Galton 1865: 168)

He went on to suggest what he admitted to be a utopian program of selective human breeding based on the assessment of ‘talent, character and bodily vigour’ in young people. It is significant that the second paper is devoted to a discussion of the ‘differences between races of men’, and on the environmental influences that govern the development of national character and culture; lending support to the view that his earlier travels and anthropological observations influenced his intellectual development, including his thinking about race improvement. Even before his exposure to *Origin of Species*, it is likely that he had ‘already become intrigued with the idea that the human race could be improved by the regulation of marriage, an idea which involved heredity and which had long historical roots’ (Hilts 1973: 220). He marvelled at ‘how enormous is the compass of the scale of human character… and how differently are the principles of virtue measured out to different natures!’ particularly evident he thought, when observing the personalities of children (Galton 1865: 324).

**The Law of Deviation from the Average**

Continuing to marvel at the way that ability is measured out to different natures and passed from one generation to the next, he proceeded in a systematic way to investigate the nature of both the transmission and the dispersion of ability. In *Hereditary Genius* he attempted to show that talent (of aspecific kind) runs in families. Again he made lists and assembled pedigrees of famous men and their relatives: judges, statesman, writers and scientists, scholars and divines, and even ‘North Country wrestlers’. He set out to show that variation in ability—like other phenomena—is distributed according to the ‘vary curious theoretical law of “deviation from the average”’ (Galton 1869: vi, 26). (The Gaussian or normal distribution, graphically shown by the familiar bell curve).
That is, that ability is distributed according to a comprehensible and calculable mathematical principle.

This law had originally been applied by Gauss and La Place to account for errors made in the measurement of astronomical observations, such as the position of the stars and planets, and had been taken up in the early nineteenth century by the Belgian astronomer Lambert Adolphe Quételet (1796–1874). Quételet suggested that the law could be applied to describe the ‘distribution of human physical features such as height and girth’ that is, the law of error could be used for anthropometric purposes (Porter 1986). Galton had been introduced to the law by William Spottiswoode, President of the Royal Society, who had explained to him its far-reaching possibilities. Galton then reasoned that ‘since the law of error could be applied to stature, it should apply to ability as well’ (Hilts 1973: 224).29 As such, long before the invention of the intelligence test Galton decided that intelligence must follow the normal distribution:

This is what I am driving at—that analogy clearly shows that there must be a fairly constant average mental capacity in the inhabitants of the British Isles, and that the deviations from that average—upwards towards genius, and downwards toward stupidity—must follow the law that governs deviations from all true averages. (Galton 1892: 72; Mackenzie 1981: 57)

The Concept of the Average Man

Quételet had in his major work *Sur l’homme et le developpment de ses facultiés, ou essai de physique social* (1835) (On man) developed the concept of the ‘average man’, and discussed the measurement of individual differences in order to find averages for groups. Hilts (1973: 221) makes the observation that while Quételet ‘recognized the existence of diversity among individuals’, he was not committed to extend the study of individual difference in his own statistical research. ‘For Quételet individual differences were embarrassments to be got rid of by focussing upon averages and large numbers; for Galton they were almost the only thing of interest’ (Hilts 1973: 221).

Of course Galton could not prove that what he was measuring was biologically determined, and he was aware that in order to pursue his studies he would have to obtain ‘a multitude of exact measurements relating to every measurable faculty of body

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29 Hilts (1973: 224) suggests that this position was both biologically and mathematically ‘weak’. The real reason that Galton uses the error law in *Hereditary Genius*, is the ability that this gives him to render relative and comparative statements into absolute terms and make it possible for him to construct a scale to measure ability in the traditional sense. What Galton wanted was a ‘statement that would say something about ability, expressed in suitable units, possessed by X men listed in the dictionary’, he could then ‘pass form statements like “Bach had musical ability of one in many millions” to “persons possessing ability in excess of four times the probable error from the average are as uncommon as one in several millions”’. 
or mind, for two generations at least, on which to theorize’ (Galton 1908: 244). So between the 1860s and the 1870s he set out to collect information of three kinds. Data concerning human physical features. Hereditarian information gained from experiments on the ancestry of the sweet-pea plant and information about human heredity obtained by survey and questionnaire (Kevles 1985). His ‘first attempt was to stimulate schools to weigh and measure, which was successful at Malborough College’ although it failed to provide the ‘eugenic’ data he was after (Galton 1908: 244).

Galton had regarded schools in general as a useful source of information about changes over time (if any) in national physique and intelligence. He believed, (along with others) that the physical capacity of English schoolboys was deteriorating as more of them were raised in cities. Although he disagreed with the social reformers that the deterioration (if it existed) was due to the often disagreeable nature of urban living (Cowan 1972: 515). Galton ‘assumed that if the health of schoolboys had degenerated, their breeding capacity would be impaired’ something he was unable to prove. This did not stop him and later eugenicists from assuming the hypothesis to be true (Cowan 1972: 515).

**Insight into Human Inheritance**

In 1876 he had an another more far-reaching success. He asked the question:

> How is it possible for a population to remain alike in its features… during many successive generations, if the average produce of each couple resemble their parents? Their children are not alike… (Galton 1908: 300)

With the help of friends in various parts of England (including Charles Darwin in Kent) he conducted an experiment.

He selected as a parental generation seven groups of seeds, each group containing the same number of seeds of a particular weight. The seven weights were the mean weight of all the seeds and the weights found at three statistical intervals on either side of the mean. He placed ten seeds from each group in separate packets and mailed sets of seven packets, with detailed instructions for planting. (Kevles 1985: 14)

He gathered the seeds born of this planting, and weighed them. He found:

> that no matter what the weight of the parent seeds… the distributions had the same statistical variability… the same proportion of seeds could be found on the bell curve within a given distance from the family mean. (Kevles 1985: 15)

Galton was ‘delighted’ for he realized that laws governing heredity whether of plants or people could be ‘treated mathematically, in terms of units of statistical
deviation’ (Kevles 1985: 15). Galton had written of his work that it only interested him in as far as it gave him an insight into human inheritance.

**Typical Laws of Inheritance**

The sweet-pea experiment was reported in ‘Typical laws of heredity’ published in January 1877. In it Galton made an important contribution to both statistics and genetics. He described the tendency after successive generations for progeny ‘to depart from the parental type’ and revert ‘to what may be described as the average ancestral type.’ He called this the ‘co-efficient of reversion’ or the ‘law of [filial] regression’ (Galton 1877; Cowan 1972: 518–21; Forrest 1974).

In 1882 he published and article in the *Fortnightly Review* ‘The anthropometric laboratory’ which begins with the question:

When shall we have Anthropometric Laboratories, where a man can from time to time get himself and his children, weighed, measured and photographed, and have each of their bodily faculties tested, by the best methods known to modern science? (Galton 1882: 244–45)

In 1883 there followed *Inquires into Human Faculty and its Development*, a major work in the history of psychology including as it does, short essays covering most of his ground-breaking work (Flügel 1964). The ‘History of twins’ and a chapter on ‘nature and nurture’ can be cited, as can a chapter on ‘Psychometric experiments’, the first experiment on free-association, and one on mental imagery, which ‘proved eventually to be one of richest fields for the study of individual differences,’ particularly in German and American psychological laboratories (Murphy & Kovach 1972: 141). *Inquires* is also the work in which he first uses the term ‘eugenic’. It is, he writes, a ‘better word than “viriculture”’ to

express the science of improving stock… which especially in the case of man, takes cognisance of all influences that tend in however remote a degree to give more suitable races or strains of blood a better chance of prevailing. (Galton 1883: 17)

He made it plain that eugenics ‘would be a science, a religion and a platform for social policy and change’ (Buss 1976). The book was particularly concerned with the variety of human nature, in its outward physical expression, and contained further chapters on composite photography, anthropometry, and the use of statistics to understand physical phenomena (Keynes 1993).
The Anthropometric Laboratory

In 1884 he set up and equipped at his own expense an Anthropometric Laboratory as part of the International Health Exhibition held in South Kensington (Fig. 8). For three pennies, men, women and children:

- could have their chief physical characteristics measured and recorded; including keenness of sight; colour-sense; judgement of eye; hearing; highest audible note; breathing power; strength of pull and squeeze; swiftness of blow; span of arms; height, standing and sitting; and weight. (Galton 1885: 205)

These tests and the instruments for them (Fig. 9) were so designed and ‘contrived that the examinee might be left to himself until he had performed the specified act, after which the attendant would return and note the result’ (Galton 1885: 208).

For ‘keenness of sight’, each eye was tested separately by the apparatus shown in Plate X11, Fig. 1. The individual looked through an eye-hole at a series of numbered blocks arranged along a curved frame; each block standing just clear of the preceding one, the frame acting as ‘an equiangular spiral’ (Fig. 1.a.). Both eyes were tested ‘and the greatest distance at which type can be read by each is recorded. If the print can not be read at all by the unaided eye, a cross is marked in the schedule’. Colour-sense was tested using another frame ‘looking something like the keys of a pianoforte’ as partially shown in Plate X11, Fig. 2. At the time of registration to take part in the tests, the subject was shown a wide range of coloured wools and cautioned that s/he would be required to pick out the many shades of green from amongst these:

A set if Holmgren’s patterns [the coloured wools] were wound each through two holes in a separate rod… and each rod had a separate number stamped on it. A row of these rods were laid in any order side by side in a frame, with a long narrow flap above and below. When the flaps were shut, the rods were nipped fast and their numbers were hid; when the lower flap was opened the numbers were exposed. The test consisted in telling the examinee that there were four tints of green, and he was required to point them out. Then the lower flap was opened, and the truth of his choice was tested by the correctness of the exposed numbers.

To judge the subjects’ ability to accurately estimate the length of a line, the instrument shown in Plate X111, Fig. 3. was utilized; and to estimate ‘squareness’ Fig. 4. In the first case the subject was required to divide a line into equal parts; and in the second s/he was asked to estimate ‘squareness’ with ‘The accuracy of the result in each case… hidden under a closed flap’. Fig. 5. shows the instrument for testing swiftness of blow or pull; and Fig. 5a. ‘the mechanism of a self-acting catch, which releases the string by which the rod is pulled just before the rod comes home’. Galton provided, in an appendix to his article, very detailed descriptions of both the construction and use of what were fairly complex instruments.
Fig. 8. International Health Exhibition: Gymnastics for girls. Reproduced from the Supplement to The Illustrated London News (2 August, 1884): 105. Courtesy of Monash University.
Mental Testing

In what has been described as the ‘birth-place of the mental-testing movement’, psychological variables, especially sensory capacity, were also tested (Thomson 1968). In 1890, James McKeen Cattell (1860–1944) a professor of psychology at the University of Pennsylvania (the first such academic position in the world) acknowledged Galton’s methods in the first edition of *Mind*. Cattell took some of Galton's methods and created the first ‘measure of individual difference in intelligence’ although it was still the case that ‘interpretation of the data took second place to enthusiasm for collecting them’ (Hunt 1993: 222; Herrnstein 1971: 4). In France in 1904, Alfred Binet (1857–1911) a ‘self-made psychologist’ was asked to sit on a committee to consider the education of ‘retarded children’ in Paris. It had already been decided that children who had been identified by examination as retarded should be placed in special classes. However, there was no test available to accomplish the task. In consequence, Binet with the assistance of his colleague Théodore Simon decided to create such a test. In 1905 they published their results in a paper ‘Methodes nouvelles pour le diagnostic du niveau intellectuel des anormaux’ (New methods for diagnosing the intellectual level of abnormal people) in *L'Année Psychologique* a journal that had been founded by Binet in 1895. While designed to identify retardation, it was modified in 1908 to permit a more general assessment of intelligence, and was revised again in 1911 when the notion of ‘mental age’ was introduced. In 1916 Lewis M. Terman (1877–1956) a psychologist at Stanford University published an American version of the Binet-Simon test, the Stanford-Binet Intelligence Test in which the intelligence quotient (IQ) made its first appearance (Herrnstein & Boring 1965; Hearnshaw 1987; Hunt 1994; Murphy & Davidshofer 1994).

At Kensington, Galton obtained data for ‘no less than 9,337’ people, ‘and each of them in 17 different ways’ (Galton 1885: 206) which enabled him after the laboratory moved permanently to ‘larger and better lighted space’ in the Science Galleries of the South Kensington Museum, to work out in some detail... the subject of the correlation between various bodily attributes, as between the length of different limbs, between stature and strength, weight and lung capacity, and very many other related measures. (Galton 1891: 32)

The ‘dearth of information about the Transmission of Qualities among all the members of a family’ during successive generations lead him ‘in 1884–85 to offer a sum of £500 in prizes to all those who most successfully filled up an elaborate list of questions concerning their own families’ (Galton 1908: 293). One hundred and ten people responded to the *The Record of Family Faculties* and the information obtained resulted in several important papers and the book *Natural Inheritance* (1889) in which
Fig. 9. Anthropometric instruments used at the Health Exhibition, 1884. Reproduced from Francis Galton, On the anthropometric laboratory at the late International Health Exhibition, *Journal of the Anthropological Institute* 14 (1884): 205–18. Plates XII and XIII.
Galton finally called the law of error the ‘normal law’ (Galton 1889; Hildt 1973; Forrest 1974) It was here that he summarized all the work he had completed between 1877 and 1888 and advocated the application of predictive or ‘probabilistic’ statistical methods to the study of human heredity, although he did not include his most important discovery: the ‘index of correlation’ (Cowan 1972: 525).

Paradoxically, the statistical innovations that resulted from his hereditarian speculations would pose a problem for his program of race-improvement. If the sweet-pea, and by extrapolation the human race, was left to reproduce at will, the progeny would ultimately regress toward the mean for the population (Kevles 1985). The nature of biological transmission of characters was unknown. Darwin, Galton and the German biologist Auguste Weismann (1834–1914) all theorized upon an as yet mysterious mechanism of evolution in the days before the re-discovery of Mendel’s papers. Once found, Galton—who acknowledged Mendel’s work in his autobiography—believed that humanity could take charge of its own evolution replacing the aimless work of natural selection with a rational and scientifically-based artificial selection (Tordjman 1991).

Galton’s eugenic ideas received only scant support during his scientifically most productive years, although he achieved a ‘modest fame’ for his work as a whole. Only in the last decade of his life could he report a small but appreciative audience (Galton 1908). It may have been that his aims did not fit the tenor of the times. Galton reckoned that ‘popular opinion was not then ripe to accept even elementary truths about hereditary talent and character, upon which the possibility of Race Improvement depends’ (Galton 1908: 319). A eugenic state required a level of control at odds with the liberal culture that was Britain in the middle years of the nineteenth century (Buss 1976). Yet by the end of the century there was vigorous discussion among experts about the ‘physical’ and ‘racial degeneracy’ of the British race. Doctors, criminologists, and educators, were divided between a ‘minority who detected signs of irreversible organic decline… and a majority who thought symptoms of decay could be treated by political intervention and environmental improvements’ (Harris 1993: 231–32). The controversy progressed and found its fullest voice in the eugenics movement as it developed during the Edwardian period.

Galton’s interest in eugenics grew in the context of a society keenly interested in the project of human improvement.30 This project, if conceptualized as a living thing, a

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30 However, such was Galton’s enthusiasm for any hereditarian aspect of this project that it extended beyond the human realm. A man, who according to Beatrice Webb (1926) possessed a fine sense of humour, in 1896 he sent a letter to The Spectator headed ‘Three generations of lunatic cats’ in which he discussed the fact that ‘domestic cats are subject to mental disorder, which would tend’ he wrote ‘to be combined, as they are in man, with wild temper and outbursts of rage’. He went on to describe the unfortunate offspring of a ‘mad family’ of cats headed by ‘Phyllis’ who even as a kitten
plant perhaps, was notable for its ability to spread into various nooks and crannies of
the intellectual garden. Those who cultivated this garden adopted various methods to
stimulate the growth of ideas about development and progress and perfectibility. Not all
the gardeners were ‘scientists’ in the narrow sense of the term. Their education varied.
The way they used prevailing knowledge was often complex as in the case of Galton’s
friend and colleague Herbert Spencer who harvested ideas from biology, philosophy
and education to create a sociology of human development which was at once original
and wholly of its time.

The following chapter explores some of the complex influences which governed the
philosophical and sociological writing of Herbert Spencer. Spencer looked to biology
for his metaphor of human progress and was responsible to a certain extent for the
way in which later generations came to understand the Darwinian approach to
evolution. As Wallace (1905, 2: 33) recalls: ‘Herbert Spencer was always interesting
from the often unexpected way in which he would apply the principles of evolution to
the commonest topics of conversation, and he was always ready to take part in any
social amusement.’ It was Spencer who ‘gave us… the words “Theory of Evolution”
seven years before Darwin’ (Allen 1897: 260). Spencer made use of the notion of the
origin of species by the process of modification and applied it to the evolution of
societies. ‘He was among the first to affirm that human society can be studied
scientifically and to do so from an evolutionary point of view’, thus expanding the
conceptual framework in which ideas connected with human growth and activity could
be studied (Carneiro 1968: 121). Spencer was a ‘a global thinker in a time of
increasing specialization’ (Turner, Beeghley & Powers 1989: 39). A
multidisciplinarian, one who was willing to ‘cross boundaries’, and one who played a
fundamental role in the development of biology, psychology, sociology, and
anthropology. In Grant Allen’s (1897: 262) words he was ‘a broad generalist’ and ‘a
philosopher of a wider range’, a man who regarded all knowledge as his province. He
applied a ‘cosmic intellect’ to the issue of evolution expanding its application as a
concept, an accomplishment which no other could claim. Nevertheless he eschewed the

‘had wild fits, tearing around and round the room, swearing horribly, and fighting with teeth and
claws any one who tried to pick her up’. ‘Tessie’ daughter of ‘Phyllis’ was pronounced ‘nervous’
and had kittens that ‘went mad so often that her owner got a bad name among her friends as a cat-
provider, so ‘Jessie [sic] was destroyed’ (Galton 1896: 514).
biological answer to human improvement which had become one of the identifying features of the psychology of his friend Francis Galton.
Chapter 6

The Select of Their Generation

The human race... is, and will long continue to be, in process of adaptation. By the term civilization we signify the adaptation that has already taken place. The changes that constitute progress are the successive steps of the transition. And the belief in human perfectibility, merely amounts to the belief, that in virtue of this process, man will eventually become completely suited to his mode of life.

—HERBERT SPENCER, 
Social Statics (1851) p. 63

It is an error to imagine that evolution signifies a constant tendency to increased perfection. That process undoubtedly involves constant remodelling of the organism in adaptation to new conditions; but it depends on the nature of those conditions whether the direction of the modifications shall be upward or downward.

—THOMAS HENRY HUXLEY, 
The Struggle for Existence in Human Society 
(1888) p. 44

Focus of Chapter

This chapter examines the influence of the ‘temporal dimension of the idea of progress [and] the diffusion of ideas in space through the proliferation and intensification of global systems of communications’ (Williams 1992: 382). The focus on time is not at variance with Lovejoy’s philosophy. Lovejoy was a temporalist with respect to the history of ideas. He argued in the Great Chain of Being and in other works that reason and the ‘quest for intelligibility’ is what governed human ordering of the world (Lovejoy 1936: 23).

The history of the idea of the Chain of Being—in so far that idea presupposed such a complete rational intelligibility of the world—is the history of a failure... The experiment taken as a whole, constitutes one of the most grandiose enterprises of the human intellect. But as the consequences of this most persistent and most comprehensive of hypothesis became more and more explicit... they show the hypothesis of the absolute rationality of the cosmos to be unbelievable. It conflicts, in the first place, with one immense fact... the fact that existence as we experience it is temporal. A world of time and change... [It] is a world which can neither be deduced from nor reconciled with the postulate that existence is the expression and consequence of a system of “eternal” and “necessary” truths inherent in the logic of being (1936: 329).

Ideas did not exist outside of time. ‘[T]ime’ he argued, ‘is not “ideal” in the sense that it can be regarded as unreal, as an allusion or a “false appearance” of something non-temporal’ (Lovejoy 1912: 11-12; Wilson 1980: 81). This point of view conflicts
with that which holds that Lovejoy’s approach to ideas (particularly the concept of the ‘unit-idea’) implies essentialism (Bevir 1999). The process in which Lovejoy engaged, his method which is so difficult to ‘pin down’ and replicate, is one which is ultimately concerned with the dynamic forces of both intellect and the process of what is called history as a concern in human temporal life (Wilson 1994: 171).

This evaluation of a world constituted of time and governed by change continues and elaborates the previous discussion in Chapter 3 of the Greek association of progress with technological invention. That progress is made in the world through material and intellectual change is in the spirit of the analogy made by Carlyle in The French Revolution and in his essays. Whether historical progress surrounding the nature of progress itself is circular or linear or oscillatory does not matter, what matters is that it is recognized to be dynamic (Teggart 1994: 22–32). Ideas are embedded in the dynamic processes in which human beings engage, whether this be in revolution, the creation of artistic works, the creation of technological inventions or the creation of the instruments for carrying out anthropometric measurement. The ‘diffusion’ of ideas in Western society in the nineteenth century relies upon mechanization. It relies particularly upon the expansion of the railway the development of which constitutes the ‘background to the dominant intellectual tendencies of the age’ (Lovejoy 1936: 7). The concept of ‘arteries’ of communication, itself a biological and physiological analogy makes sense of that analogy as drawn in the philosophy and sociology of Herbert Spencer and of his conceptualising societies as developing through a process of ‘organic’ change.

Making Utopias

Galton and Carlyle were among the beneficiaries of a spirit of inquiry which had grown gradually to include more and more individuals from a broader cross-section of society. Since the time of Bernard de Fontenelle there had been an attempt to foster interest in the sciences through exposition, and gradually the audience available to take part in scientific discourse had widened. Fontenelle in Entretiens sought to bring both the wonder and the facts of the Copernican universe to an audience of educated and intellectually curious men and women. The Enlightenment philosophes through the agency of the Encyclopédie wanted ‘to collect all knowledge there was to be gleaned over the surface of the earth’ in order that it might be passed on to generations yet to come. Condorcet in Esquisse foresaw the possibility that those generations might benefit through the active involvement of science in the functional activities of society, and went so far as to suggest that human beings could perfect themselves through social and scientific intervention, and careful husbandry. An idea ridiculed as fanciful by Thomas Malthus who reckoned that human destiny would always be inextricably
governed by the ability of society to control its numbers in relationship to its food supply. In the nineteenth century in the wake of real technological change, an ambivalent discussion arose regarding the effect of environment on human enhancement.

**Temporal and Spatial Utopia**

In *Entretiens* Fontenelle as well as clarifying the Copernican system, also made an argument for plurality or diversity of cultures by pointing to the variety of cultures and customs beyond the lands inhabited by Europeans. He supports this conjecture with the observation that ‘new worlds’ have recently been revealed to the human eye through the new technology of the microscope.¹ The conversations between the philosopher and the Marquise take place in a garden yet the world of which they speak is ‘out there’. On one level, *Entretiens* may be regarded as science fiction, exploring the notion that life may exist on other planets. On another level *Entretiens* brings to the twentieth century reader an awareness of the changing world of which Fontenelle and his readers are part. Intellectually the ‘first’ philosophe is moving the region of possibilities from past to future, and incidentally from the physically more limited world of pre-Enlightenment Europe with its walled cities to the spatially more accessible world of the nineteenth and twentieth centuries.

Rosalind Williams (1992: 382) has suggested that ‘Most interpretations of the Enlightenment stress the temporal dimension of the idea of progress’ and that it was only in the eighteenth century that utopia ‘ceased being defined as another place… and instead became another time—the future’. An idea best expressed in Condorcet’s *Esquisse* with its sequence of ten historical/technological stages, in which the tenth stage points to indefinite progress ‘because for the first time in history technological innovations prevent historical regression’ (Williams 1992: 389).

Condorcet ([1795] 1955) had argued that Greek progress had been thwarted by Rome, because the Greeks lacked effective ‘means of communication’ (Williams 1992: 389).

If the progress of the Greeks was lost to later nations, this was because of the absence of any form of communication between the different peoples, and for this we must blame the tyrannical domination of the Romans. (Condorcet [1795] 1955: 178)

¹ The reference here is to the invention of the microscope by Anton van Leeuwenhoek. He was the first with his ‘simple lens’ to reveal microorganisms or ‘animacules’ in water, semen, saliva and blood; thus being the first to observe bacteria and protozoa through the lens. His observations led to the questioning of the doctrine of spontaneous generation (abogenesis) which held that an organism could develop from non-living matter. It was his countryman Christiaan Huygens (1629–93), who speculated that the microscopic organisms revealed in water and air might be able to reproduce.
It was only with the invention of the printing press which enabled ideas to be spread far and wide that ‘the human mind was truly freed from spatial limitations’ (Williams 1992: 389):

Men found themselves possessed of communicating with people all over the world… The public opinion that was formed in this way was powerful by virtue of its size, and effective because the forces that created it operated with equal strength on all men at the same time, no matter what distances separated them. (Condorcet [1795] 1955: 100)

Williams (1992: 382) also suggests that the *philosophes* added a ‘crucial spatial dimension’ to the temporal dimension of the idea of progress:

> identifying the spread of enlightenment with the diffusion of ideas in space through the proliferation and intensification of global systems of communication. Social progress was assumed to depend on construction of connective systems: communication and transport grids, layer upon layer of roadways for the circulation of people, goods, and ideas [in such a way that] the Enlightenment vision of progress rests on a powerful *ideology of circulation.* (Williams 1992: 382 [emphasis in original])

Williams (1992: 396) adds:

> For the *philosophes*, the ideal, utopian community was not based on geographical contiguity, which they considered an inherently reactionary arrangement, but was a community without boundaries connected by “technologies without boundaries”. There were models for such noncontiguous communities, both of them dating from the seventeenth century. One was the “universal” class of capitalist merchants controlling the circulation of capital”; the other, the international fraternity of natural philosophers, or “scientific community” as it would now be called, controlling the circulation of scientific ideas. In both cases community members were united by relationships that “disembedded them… from the natural landscape.”

Williams (1992: 384) draws attention to the fact that in the modern capitalist state, ‘there is a constant tension between political and economic organisation of space—between tentacular lines of economic power connecting cores and peripheries’ and that the ‘*philosophes* considered the political boundaries relatively unimportant compared to the lines connecting cultural centers with peripheries’. Making use of an image adopted by Ferdinand Braudel ([1979] 1982) in his assessment of the forces which shaped the development of European culture, she notes that in the era of the Enlightenment:

> the “Octopus grip of European trade”… also became the dominant cultural map… both a description of economic reality and also a cultural ideal. In the eighteenth century extended lines replaced the enclosed garden as the dominant image of utopia. (Williams 1992: 384)

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The Engine of Progress

In the nineteenth century the construction of multiple ‘systems of connection’ epitomizes this trend. It was a time when ‘canals, railroads, tunnels, roadways, electrical power networks… transformed the natural landscape in ways that were immediately visible and often dramatic’ (Williams 1992: 393). A time when the ‘Age of Enlightenment faded into the Age of Improvement’ during which ‘the spatial basis of Western society began to be reorganised along ever extending networks of transportation and communication, which were also networks of economic, political and intellectual power (Williams 1992: 393).

The most potent symbol of potential transformative power was the locomotive: the ‘engine of progress’. Using a Marxian analysis Arnold Trachtenberg ([1977] 1986: xiv-xv) writes that the locomotive was symbolic not only of ‘the annihilation of space by time’, but also as a symbol of ‘modernity’ in which it crystallised ‘a radical foregrounding of machinery and of mechanical apparatus within everyday life’ a fact of which Carlyle was so aware.

The railroad represented the visible presence of modern technology as such [and] within the technology lay also forms of social production and their relations. Thus the physical experience of technology… gave a form to a revolutionary rupture with past forms of experience, of social order, [and] of human relation. (Trachtenberg cited in Schivelbusch [1977] 1986: xiv-xv)

What appears exciting and inchoate in William Turner’s Rain, Steam, Speed, a painting which appears to celebrate all the potential energy marking the early period of what Kenneth Clark (1973) has referred to as ‘heroic industrialism’, is less obvious as such in Frith’s The Railway Station, (1862 ) in which the relationship between humanity and technology is clearly defined. Technology is now specific, integral, and mediates social relationship. During the nineteenth century, the relationship between mechanic power and human intellectual and physical power would come to play an increasing part, both as a theme and a spur to literary and scientific output.

The locomotive realised the ‘mechanization of motive power’, and symbolized the transition from a pre-industrial, mainly agrarian and craft-based society, to complex industrial economies (Schivelbusch [1977] 1986: 1–15). Herbert Spencer’s future conceptualization of biological, psychological and societal development, stressed a similar progression from simple to complex forms (Sanderson 1990). His great work was the Synthetic Philosophy (comprising First Principles, 1862; The Principles of Sociology, 3 vols., 1876–96; The Principles of Ethics, 2 vols., 1892–93) through which he ‘attempted to systematize [and synthesize] all branches of knowledge upon one set of scientific principles,’ the principles of ‘universal’ evolution (Paul 1983: 619; Offer 1980). In doing so he attempted to unite, much like roads and railways unite disparate
parts of a nation, the disparate ‘sciences’ which have as their focus the biological, the social and the moral development of human beings.

Herbert Spencer

It is almost no accident then, that Herbert Spencer who has been described as ‘the most effective scientific spokesman of early industrial capitalism’ (Harris 1968: 125). Turning afterward to journalism, as sub-editor of the *The Economist* (1848 to 1850) and gradually to philosophy and sociology it not an accident that he should also be the one most closely connected with the idea that both human and cultural progress is accomplished through the desire of individuals to improve their lot and transform their environment.

As a youth of seventeen he was set the task of ‘measuring up work and making small surveys’ on the London section of the Birmingham to London railway (Spencer 1904, 1: 131). He was paid a ‘salary of only £80 a year, with a prospect of increase to £150; but [as he explains in his biography] for a youth of 17 this was not amiss: especially considering that the post gave valuable opportunities of obtaining information and undergoing discipline’ (Spencer 1904, 1: 131). Indeed the nature of his railway work seems to have been such that it provided Spencer with the opportunity for much contemplation while walking ‘hither and thither about the line’ (Spencer 1904, 1: 174). For it was during this period that he was ‘led into the study of Geology’ in a superficial way; but stimulating enough to result in ‘the purchase of [Charles] Lyell’s *Principles of Geology*, a work then recently published’ an event that served to ‘introduce a fact of considerable significance’ (Spencer 1904, 1: 176). He continues:

I had during the previous years been cognizant of the hypothesis that the human race has been developed from some lower race; though what degree of acceptance it had from me memory does not say. But my reading of Lyell, one of whose chapters was devoted to a refutation of Lamarck’s views concerning the origin of species, had the effect of giving me a decided leaning to them. (Spencer 1904, 1: 176)

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3 In his autobiography Spencer tells that he started work, under the direction of the engineer Mr Charles Fox on 10 November 1837 at Chalk Farm Station (later demolished) on the Birmingham and London Railway. Charles Fox (1810–74), who had been a pupil of Spencer’s father, had worked for Robert Stephenson (1803–59) who was famous as the designer of railway bridges and was the son of George Stephenson (1781–1848) the inventor of the first modern locomotive the ‘Rocket’, which in 1830 ran 30 miles an hour on the Liverpool to Manchester line. Charles Fox went on to build the Crystal Palace which housed the Great Exhibition of 1851, for which feat of building he received a knighthood.

For a short period of time during his twenties, A. R. Wallace also worked as a surveyor on a railway in the Vale of Neath at Merthyr Tydfil in Wales. With his brother John he designed and supervised the building of the Mechanics’ Institute in Neath (George 1964).
Evolutionary and Developmental Views

Spencer was influenced in his ideas on social evolution by J. P. Lamarck, Thomas Malthus, K. E. von Baer ‘and first and unacknowledged, Adam Smith’ (Peel 1971: 138). His evolutionary and developmental views were expressed ‘somewhat disconnectedly’ throughout his writings of the 1840s and 1850s. ‘The Proper Sphere of Government’ appeared as a series of ‘letters’ in The Nonconformist, between June and December 1842. In these he expressed:

an unhesitating belief that the phenomena of both individual life and social life conform to law and there was insistence on the progressive adaptation of constitution to conditions: implying the influence of the development hypothesis [Lamarck’s view] previously accepted. (Spencer 1904, 2: 8)

This was followed by ‘The Development Hypothesis’ (The Leader, 20 March, 1852) in which what had previously been ‘tacit only… was avowed’ as ‘a profession of faith’ (Spencer 1904, 2: 8). ‘A Theory of Population deduced from the General Law of Fertility’ (Westminster Review for April 1852) followed. In this he argued ‘only one aspect of evolution—the decrease of fertility that accompanies increase of development’ making the point contra Malthus, that ‘far from being the obstacle to human perfectibility’ population pressure ‘is its only guarantee, since it alone forces organisms to be fit to survive’ (Spencer 1904, 2: 8; Peel 1971: xxi). In Spencer’s ([1852] 1972: 36) words:

It is clear that the wants of their redundant numbers constitute the only stimulus mankind have to greater production of the necessaries of life; for were it not the demand beyond the supply, there would be no motive to increase the supply…

But this inevitable redundancy of numbers—this constant increase of people beyond the means of subsistence—involving as it does an increasing stimulus to better the modes of producing food and other necessaries—involves, also an increasing demand for skill, Intelligence, and self-control—involves, therefore, a constant exercise of these, that is—involves a gradual growth of them. Every improvement is at once the product of a higher form of humanity, and demands that higher form of humanity to carry it into practice.

Even in this brief extract we note the blending of ideas taken from Malthus on population, concepts, like the ‘law of supply and demand’ drawn from the realm of economics, an evolutionary perspective that emphasis the Lamarckian notion of ‘use-inheritance’: the idea that ‘constant exercise… involves a gradual growth’ and that the modified form is passed on to the next generation as an ‘improvement.’

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4 ‘Letters on The Proper Sphere of Government’. The Nonconformist, 15, 22 June; 13, 27; 10 August; 7, 21 September; 19, 26 October; 23 November; 14 December, 1842. These were later published as a pamphlet under the same title. The Nonconformist was a radical newspaper ‘dedicated to the dissolution of the connexion between church and state’ (Spencer 1904, I: 337). It was published and edited by Edward Miall (1809–81), a Congregational minister who agitated against various impositions placed on Dissenters by the established church, in particular the requirement to pay rates to support the activities of the Church of England.
continues in this vein and pursues and extends another theme central to his argument: that fertility is inversely correlated to brain size, and by inference mental capacity, and by extension can be held to account for differences in social and cultural progress. A demonstration of which, he argued could be made on the basis of a ‘general survey of human progress evidenced by the greater power of self-preservation shown by the civilized races’ and ‘proved by actual measurement’ of the ‘mean capacities of the crania of the leading divisions of species which have been found to be’:

- In the Australian 75 cubic inches
- In the African 82 cubic inches
- In the Malayan 86 cubic inches
- In the Englishman 96 cubic inches

Thus ‘showing an increase in the course from the savage state to our present phase of civilization, amounting to nearly 30 per cent on the original size. That this increase will be continuous might be reasonably assumed’ (Spencer 1852: 498).

From Spencer’s social and intellectual vantage point it seemed reasonable to write:

Difficulty in getting a living is alike the incentive to a higher education of children, and to a more intense and long-continued application in adults. In the mother it includes foresight, economy, and skilful housekeeping; in the father, laborious days and constant self-denial. Nothing but necessity could make men submit to this discipline, and nothing but this discipline could produce a continued progression. The contrast between a Pacific Islander, all whose wants are supplied by Nature, and an Englishman, who generation after generation, has had to bring to the satisfaction of his wants ever-increasing knowledge and skill, illustrate at once the need for, and the effects of such discipline. (1852: 499)

It is interesting to note, that Petrus Camper did not set out to prove through measurement, that the crania of the different races were structurally different. The original purpose of cranial measurement was aesthetic, as a way to conceptualize beauty, and as an aid to artists. In the nineteenth century this association was gradually overtaken by the need of anthropologists to account for separate races and their insistence:

On separate creations (polygenism), permanency of racial types, and the existence of racial worth. They used the gradation in skull shape as evidence by emphasizing that the skull housed the brain... The craze for measuring skulls... resulted from the general association between the cranium and intelligence and the unchangeability of racial “natures”. (Meijer 1991: 6–7)

Racial Determinism

While acknowledging that Spencer was an early adherent of phrenology (the first physiological psychology), even designing a new instrument ‘that might be useful to anthropologists’, inventing the cephalograph in 1846, he also shared the ‘racial determinist’ perspective of his time. For as Marvin Harris (1971: 130) points out ‘no
major figure in the social sciences between 1860 and 1890 escaped the influence of evolutionary racism’. A ‘thraldom’ not broken until the advent of approaches to the study of society which did away with the evolutionary viewpoint altogether; and put in its place techniques which treated ‘each society or culture as a functioning whole that cannot be evaluated by the standards of any other’; the corollary being, that if societies could no longer be ranked on a scale of perfection, there would no longer be ‘any reason to judge other races biologically inferior for failing to develop along European lines’ (Bowler 1989b: 309).

Paradoxically, it was Spencer who was responsible for introducing the ‘comparative’ approach to theorizing about society in the first place, introducing many of the concepts that have become central to the discipline of sociology in the twentieth century (Turner [1981] 1989).

**Spencer and Lamarck**

Convinced of the Lamarckian point of view from his first readings in evolution, Spencer remained loyal to the Lamarckian perspective, even after ‘the two papers by Mr. Darwin and Mr Wallace on the operation of Natural Selection in causing divergence of species, were read before the Linnean Society’ (Spencer 1904, 1: 50).5 Although that part of Wallace’s essay which referred to the idea of the survival of the fittest, made an impact such that he was able to write in his Autobiography that looking back on the matter, he was vexed by the realization that in 1852, he had ‘failed to carry further the idea then expressed, that among human beings the survival of those who are the select of their generation is a cause of development’ (Spencer 1904, 1: 50).

5 The ‘two papers’ were Wallace’s ‘On the tendency of varieties to depart indefinitely from the original type’, and Darwin’s ‘On the variation of organic beings in a state of nature; on the natural means of selection; on the comparison of domestic races and true species’, which was an extract of part of the manuscript of *On the Origin of Species*. The whole was communicated by the geologist Sir Charles Lyell and the botanist Dr Joseph Hooker to a meeting of the Linnean Society of London on 1st July 1858, under the title ‘On the tendency of species to form varieties; and on the perpetuation of varieties and species by natural means of selection’. Neither Darwin nor Wallace were present. Darwin because of family illness and Wallace because he was still in Ternate in the Molaccas (present day Indonesia, then known as the Malay Archipelago) where in 1855, while forced to rest during a bout of Malaria, his paper on natural selection had been composed with the title ‘On the law which has regulated the introduction of new species’. This essay known as the Ternate Essay was solidly based on arguments made in response to reading Malthus’s *Essay on the Principle of Population* some years earlier. Since Malthus had in this work expressed the opinion that more young were produced than ever grew to adulthood, Wallace wondered why, and came to the conclusion that those who survived were those who were best able to adapt to changing environmental conditions. ‘it suddenly flashed upon me that this self-acting process would necessarily improve the race, because in every generation the inferior would inevitably be killed off and the superior would remain—this is, the fittest would survive’ (cited in George 1964: 59, [emphasis in original]). See C. H. Smith. ed. 1991. *Alfred Russel Wallace: An Anthology of his Shorter Writings* (Oxford: Oxford University Press) for a detailed ‘idiosyncratic’ bibliography of Wallace’s writings.
Lamarck had originally introduced the mechanism of the inheritance of acquired characteristics to account both for animal adaptation and progress. According to Lamarck, an animal’s needs determined its development. Its needs were determined by its environment which affected how it would use its body. The use or non-use of particular organs would determine which organs would be developed and which would shrivel away. ‘The characteristics acquired as the result of effort would be transmitted to the offspring, thereby enabling the effect to become cumulative’ (Bowler [1983] 1989a: 86).

The Lamarckian mechanism allowed individual effort to be portrayed as the driving force of evolution: the famous example, the giraffes stretch their necks to reach the leaves of trees and the results of their efforts are accumulated over many generations to give the animal we know today. (Bowler 1989b: 137 [emphasis added])

When ‘applied to mental evolution’, it ‘allowed the benefits of experience to accumulate in the form of increased intelligence and social instincts’ (Bowler 1989b: 92). As A. R. Wallace pointed out in his pivotal essay ‘On the tendency of varieties to depart indefinitely from the original type’ (1858), Lamarck’s hypothesis which already had ‘been repeatedly and easily refuted by all writers on the subject of varieties and species’ could be scotched by recognizing that:

The powerful retractile talons of the falcon- and cat-tribes have not been produced or increased by volition of those animals; but among the different varieties which occurred in their earlier and less highly organized forms of these groups, those always survived longest which had the greatest facilities for seizing their prey. Neither did the giraffe acquire its long neck by desiring to reach the foliage of the more lofty shrubs, and constantly stretching its neck for the purpose, but because any varieties which occurred among its antitypes with a longer neck than usual at once secured a fresh range of pasture over the same ground as their shorter-necked companions, and on the first scarcity of food were thereby enabled to outlive them. (Wallace [1858] 1991: 299 [emphasis in original])

However, since in the Lamarckian mechanism of evolution, the organism is not limited by heredity, it can acquire new characteristics in response to environmental stimuli which it may subsequently pass on to its offspring. Thus, from a non-biological point of view, Lamarckism held a certain attraction, for all those, who desired to see change itself as an active force, including early liberal and radical thinkers, who sought to challenge the idea of a static society based on aristocratic privilege. They saw in Lamarckian evolution a natural model on which to base the notion of an egalitarian and a free society (Bowler 1989b: 154; Bowler 1990). Spencer ‘proudly regarded himself as having inherited Dissenting traditions’, and was no doubt influenced by the ideas of his radical father William Spencer, a man who possessed ‘a hostility to any kind of supernaturalism in explanation of things’, along with ‘an apolitical zeal for general improvement which expressed itself in speculation about nature and society,
and in schemes for the re-ordering of society according to a perfect unitarian system’ (Peel 1971: 8).

The Influence of Ernst von Baer

It is here, in part, that the ideas of von Baer come into play. The Estonian embryologist Karl Ernst von Baer (1792–1876) had isolated the mammalian ovum in 1828 and was the first to show that mammals, including human beings developed from eggs. He presented the theory that development was a process of increasing specialization; and overturned the ‘law of parallelism’, which held that the growth of the embryo to the adult stage progressed across species in a linear fashion, and that the adult of the lower species were merely embryos which had not attained the final goal of creation: the human race.

Baer suggested rather, that while all vertebrate embryos start at the same point, and may look the same, as they grow, an increasing degree of differentiation and specialization determines their final form. Development was the process of increased specialization. For Spencer this would hold true for society, for he likened society to an organism. The ‘organic’ analogy became a favourite of Spencer’s, and he used this analogy in the sense that he conceptualized the process of social change as analogous to changes taking place in the natural world.

The Law of Individual Development

In 1851 Spencer had been asked by the publisher John Chapman to review W. B. Carpenter’s Principles of Physiology, General and Comparative, for the first number of The Westminster and Foreign Quarterly Review. In it he ‘came across von Baer’s formula expressing the course of development through which every plant and animal passes — the change from homogeneity to heterogeneity’ and he emphasises:

This phrase of von Baer expressing the law of individual development, awakened my attention to the fact that the law which holds of the ascending stages of each individual organism is also the law which holds of the ascending grades of organisms of all kinds. (Spencer 1904, 1: 384–85)

Spencer made good use of Baer’s ideas. They fitted comfortably with the Lamarckian mechanism of evolution, and the associationist psychology of the Scottish philosopher/psychologist Alexander Bain (1818–1903) then fashionable.

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Associationism

Associationism maintains that ‘mind is made up of simple elements in the form of ideas which come from sensory experience. These ideas are held together by association’ (Chaplin 1968: 40-1, s.v. ‘Associationism’). While having roots in philosophy dating back to Aristotle, its main supporters were the empiricist philosophers John Locke, George Berkeley (1685–1753) David Hume (1711–76) and prominently David Hartley (1705–57). As empiricists they were opposed to the notion of innate ideas, and upheld the belief that experience was the basis of all knowledge. Hartley, a physician by training, developed an early physiological psychology. He published *Observations on Man, His Frame, His Duty and His Experiences* in 1749, Part 1 called ‘Containing Observations on the Frame of the Human Body and Mind and in their Mutual Connections and Influences’ bears some resemblance to a modern psychology textbook.

Hartley ‘fused’ Isaac Newton’s mathematical principle of vibratory motion with John Locke’s concept of the association of ideas. He suggested that external stimuli led to vibrations of sensory nerves in the brain. The vibrations travelled along neural pathways into the lower brain resulting in a sensation. If this process was repeated often enough, the cortex tended to copy this vibration permanently in a weaker form, which Hartley termed a ‘vibratiuncle’. These remained even after the original stimulus had been removed. Hartley ([1749] 1966) suggested that sensations and ideas become related through contiguity (closeness) a process which could be simultaneous of successive [Proposition 12: Simple Ideas run into complex ones, by means of Association] (Hartley [1749] 1966: 73–9; Chaplin 1968; Wertheimer 1970; Hearnshaw 1987; Leahey 1992).

For Hartley, association was the basis of mental compounding, and simple ideas associated together become combinations of ideas and eventually one complex idea... if enough simple ideas coalesce into a complex idea, each simple idea may no longer be discernible. (Thorne & Henley 1997: 85)

Associationism reached its high point in the early nineteenth century in the work of James Mill (1773–1836) and his son John Stuart Mill (1806–73) both of whom expanded on Hartley’s laws of association, adding the ‘motivational doctrine of utilitarianism’ as espoused by the legislative reformer Jeremy Bentham (1748–1832). Utilitarian ‘hedonism’ supposed that human beings are motivated by the pursuit of pleasure and the avoidance of pain. Individuals should conduct their lives according to this principle. Governments should act in similar fashion, enacting legislation that confers the greatest happiness on the greatest number. Since Bentham, like Adam Smith, regarded government as naturally oppressive. Minimal government ensured that individuals were given maximum freedom to attain their goals (Leahey 1992).
Ironically, the ‘hedonistic calculus’ appealed to Victorian social reformers, who saw in its secular orientation a ‘justification for the establishment of a larger and more active state, one guaranteeing the well-being of the factory worker, the railway passenger, and the tenement dweller’ (Roberts 1959: 208).

**The Influence of Alexander Bain**

The ‘happiness’ postulate was joined to the principle of associationism by John Stuart Mill’s friend Alexander Bain. Bain was a Scottish civil servant and educator who devoted most of his life to educational reform and the study of psychological phenomena. In 1879 he founded the journal *Mind*. ‘Like Hartley’, he:

> Sought to link psychology to physiological processes; unlike Hartley, he used physiological processes that were as real as contemporary knowledge could make them rather than being based on speculative (Newtonian) physiology. (Thorne & Henley 1997: 91)

Bain suggested that voluntary actions which through trial and error effect the desired, usually pleasurable result, are maintained and developed. He wrote a major textbook on psychology, *Mental and Moral Science* (Part 1, ‘The Senses and the Intellect’ 1858; Part 2, ‘The Emotions and the Will’ 1859). It was the first such book to contain an introductory chapter on neurology.

In *Education as a Science* (1879) Bain wrote:

> The only mode of arriving at a new constructive combination is to try and try again. The will initiates some movements; these are found not to answer, and are suppressed; others are tried, and so on, until a new combination has been struck out. (Bain [1879] 1971: 43 [emphasis in original])

Bain argued in *Education as a Science*, that Mill’s insistence that the end of education is ‘to render the individual as much as possible, an instrument of happiness, first to himself, and next to other beings’ needed qualification. Discussion of ‘perfection’ and ‘happiness’, consideration of the influence ‘exerted on human character by climate and geographical position, by arts, laws, government, and modes of social life, constitute a very interesting department of Sociology’ but was not useful in forming a definition of education. While he agreed that to some extent education was about the transmission of knowledge from one generation to the next, a ‘Science of Education’ was about the ‘means of building acquired knowledge in human beings’ (Bain [1879] 1971: 9).

Spencer’s essay review of Bain’s second volume of *Emotions and the Will* ‘Bain on the emotions and the will’, appeared in the *British and Foreign Medico-Chirurgical Review* [Jan] 1860, which review he ‘undertook mainly because of the connexion which the subject had with the general question of evolution’ (Spencer 1904, 2: 46). The review was reprinted in the first volume of the first series of *Essays, Scientific, Political, and Speculative* in 1857. Reprinted. Second series, 1863, 2: 120–42.

Bain’s ideas on trial and error would be reinforced and systematized in psychology by the work of the American ‘behaviourist’ Edward Lee Thorndike (1874–1947). He observed that ‘The chick when confronted with loneliness and confining walls, responds to those acts which in nature would be likely to free him. Some one of these acts leads to the successful act, and the resulting pleasure stamps it in. Absence of pleasure stamps all others out’ (Thorndike 1911, cited in Hunt 1993: 246). This is a behavioural parallel to the principle of natural selection. The idea that behaviour that leads
Bain’s educational psychology proved very useful to Spencer in the formulation of his own educational psychology which became a blend of Lamarck, von Baer and Bain.

According to Spencer, all brains made associations in like manner, but, physiological differences determined the number of associations a brain could make. The mind adapts in response to the environment. Less complex organisms make less complex associations. Since the ‘European inherits from twenty to thirty cubic inches more brain than the Papuan’ the ‘civilized man has also a more complex or heterogeneous nervous system than the uncivilized man’ (Spencer 1852: 497; 1857: 452; [1880] 1900: 313; Leahey 1992: 247). This would have important consequences for later understanding, measurement and research of intra and inter-racial ‘intelligence’. It would serve to reinforce the idea of intelligence as a physiologically determined reality existing along a single dimension, one not subject to environmental or cultural influence.

In his Autobiography, Spencer refers to the writing of Method in Education, which was published as The Art of Education in The North British Review for May, 1854, and became chapter two of Education: Intellectual, Moral and Physical, published in 1861. He wrote that from ‘its biological aspect, education may be considered as a process of perfecting the structure of the organism, and making it fit for the business of life’ (Spencer 1904, 1: 436). He referred to the training of young animals by their parents and how ‘a cat with her kitten, show us ways in which the young are induced so to exercise their limbs and perceptions’ (Spencer 1904, 1: 436). This observation could be extended to the observation of human young:

In children the physical education naturally effected by spontaneous play… visibly develops the muscles; and, as every physiologist will infer, develops also the nerves and ganglia which coordinate their movements… A like development accompanies the activities classed as intellectual… Every lesson learnt, every fact picked up, every observation made, implies some molecular re-arrangement in certain nervous centres. (Spencer 1904, 1: 437; Spencer [1861] 1966: 147)

It is through exercise that the ‘faculties acquire their functions for life’, and likewise ‘the acquirement of knowledge… is from a biological point of view, an adjustment of structure to function’. The implication is that ‘method in education should correspond to organization which corresponds everywhere to recognizable principles’ (Spencer 1904, 1: 437).

It needs but to remember that in its rudimentary state every organism is simple, while it ends in being relatively complex… it needs but to remember that in its first stage to a successful outcome is likely to be repeated, and behaviour which results in a negative outcome is likely to become ‘extinct’ was called by Thorndike the ‘Law of Effect’.
the forms and divisions of an unfolding germ are vague while in the adult they are quite distinct. (Spencer 1904, 1: 437)

He argued that educators should be aware of this ‘law’ of organization, since it would be futile and even mischievous to introduce concepts to the young, for which they were not organizationally, that is, not physiologically ready.

As a ‘psychologist’ Spencer took an associationist position, perfectly compatible with his Lamarckian inclination, and applied it to the study of the mind and the processes of intellectual development. Theorizing from a Lamarckian perspective he wrote in Social Statics that it was his aim to show that ‘The universal law of physical modification is the law of mental modification also’ (Spencer [1851] 1954: 56). He recalled that at the outset his purpose in the ‘analytic’ chapters of The Principles of Psychology (1855) was to show that human intellectual growth resulted from a mediation between the organism and the environment:

The process of taking to pieces our intellectual fabric and the products of its actions, until the ultimate components are reached, had now to be undertaken; and, among other things, it had to be shown that the structure of Mind, as ascertained in this way, corresponds with its structure as ascertained by tracing up its successive stages of development. (Spencer 1904, 2: 223)

Importantly:

For it needs but to contemplate that evolution of the embryo during which the organs are fitted to their prospective functions, to at once see, that from beginning to end it is the gradual, that its, continuous, adjustment of internal relations to external relations. Add to which the adult organism becomes better adapted to its conditions—those structural modifications which, under change of climate, change of occupation, change of food, slowly bring about some rearrangement in the organic balance—must similarly be regarded as continuous adjustments of internal relations. So that not only does the definition, as thus expressed, comprehend all those activities, bodily and mental, which constitute our ordinary idea of life; but it also comprehends, both those processes of growth by which the organism is brought into general fitness for these activities, and those after-processes of adaptation by which it is specially fitted to its special activities.

Nevertheless… so highly abstract a formula as this… is scarcely fitted for our present purpose… it will be best commonly to employ its more concrete equivalent—to consider internal relations as “simultaneous and successive changes;” the external relations as “coexistences and sequences;” and the connection between them as a “correspondence.” (Spencer [1855] 1998: 375)

On the implication for the development of the human mind, Spencer ([1855] 1998: 423) held that ‘the evolution of life [was] an advance in the Specialty of the correspondence between internal and external relations’, and:

Concerning the nature of Intelligence, therefore, we reach the conclusion, that it consists of a certain order of changes, which are distinguished from that lower order of changes constituting bodily life, by the peculiarity, that, instead of being both simultaneous and successive, they are successive only. Step by step differentiated from the lower order of changes with which they are originally one; they assume a more serial arrangement in proportion as intelligence advances. Though this serial arrangement never becomes in all respects absolute; yet in human consciousness, it
becomes almost so: and the highest processes of this consciousness are possible on no other condition... And hence the seriality of its changes must be regarded as that especial characteristic of intelligence, which approaches to absoluteness as the intelligence approaches to perfection.

A continued series of changes being thus the subject-matter of Psychology, it is the business of Psychology to determine the law of their succession. That they do not occur at random, is manifest, that they follow one another in a particular way, the existence of Intelligence itself testifies. The problem then, is to explain their order. (Spencer [1855] 1998: 504–5)

As Leahey (1992: 246) has pointed out Spencer’s particular view of the relationship between the fact[s] of evolution, if these were ‘true’, lead to the ultimate study of the evolutionary development of the human mind, which could be regarded as the ‘starting point of the psychology of adaptation’. A topic which formed a large part (Part 2) of the first volume of the *Principles of Biology* (1864; 1867) and where his penultimate statement on the ‘phenomena of adaptation’ is devoted to making an [comparative] analogy between the ‘forces’ at work in the changing structure of the human and animal body and the [social] forces operating in the changing physical structure and operation of a shipyard (Spencer [1864] 1898: 237–43). For psychology as a field of research the use of what has come to be known as the ‘comparative method’ would prove to be of lasting value, particularly for the study of learning. Spencer (1904, 2: 18) referred to learning (including ‘moral instruction’) as ‘the process of mental unfolding’.

Spencer added the important evolutionary component to Bain’s ideas, suggesting that such associations if ‘often repeated in the life-time of the individual... will be transmitted to the offspring as an evolutionary instinct’, becoming part of the ‘genetic legacy’ of the species or race (Wertheimer 1970: 42; Leahey 1992).

**Spencer’s Place in the Nature-nurture Controversy**

Peel (1971) suggests that Spencer was unable to choose between the two poles of the nature-nurture controversy. On the one hand he held environmentalist views consistent with those of the optimistic enlightenment philosophers and Victorian social reformers like Robert Owen; the phrenologists like George Combe, and associationists like Bain and Mill, who believed that the influence of the environment could not be discounted in its effect on the development of human intellect and character formation. All looked particularly to education (along with sanitary reform) as a powerful force for social improvement. The following statement made by Mill in *Principles of Political Economy* ([1848] 1978: 319) is according to Fancher (1985: 3) a precise declaration of this anti-hereditarian view:
Of all the vulgar modes of escaping from the consideration of the social and moral influences on the human mind, the most vulgar is that attributing the diversities of human conduct and character to inherent original natural differences.

On the other hand, Spencer could also adopt a ‘near Galtonian’ position on the continuum. This was very much so in regard to race and the idea of ‘racial temperament’ which in nineteenth century anthropology went with a belief in Lamarckism. In his early writing ‘he shows himself convinced of the variability of human nature and sceptical of the fixity of species’ while in his later work displaying:

A pessimism and practical conservatism which played down the present action of the environment in favour of the sum of past environmental influence, “organized” as character or race. (Peel 1971: 145)

From Biological Theory to Social Metaphor

Spencer’s extrapolation from biological theory to social metaphor found its fullest expression in his essay ‘Progress: Its law and cause’ which was published in The Westminster Review for April, 1857. In this essay Spencer presented an all-encompassing ‘general law of progress’ which was strongly developmental in emphasis. It postulated the notion that both the human organism and the social-state strives for self-betterment, and that this process is inevitable:

The investigations... of von Baer, have established the truth that the series of changes gone through during development of a seed into a tree, or an ovum into an animal, constitute an advance from homogeneity of structure to heterogeneity of structure...

Now, we propose in the first place to show, that this law of organic progress is the law of all progress. Whether it be in the development of the Earth, in the development of Life upon its surface, in the development of Society, of Government, of manufactures, of Commerce, of Language, of Literature, Science, Art, this same evolution of the simple into the complex, through successive differentiations, holds throughout. From the earliest traceable cosmical changes down to the latest results of civilization, is that in which Progress essentially consists. (Spencer 1857: 446)

The Differential Development of Human Races

Spencer then proceeds to apply this idea to account for what he sees as the differential development of the human races:

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8 Spencer like Galton was a prolific contributor of essays, articles and letters to the journals and newspapers of his day. In The Life and Letters of Herbert Spencer (1908) David Duncan in an appendix, lists some two hundred of these alongside the major works by which Spencer is best known. Among Spencer’s earliest writings are those connected with his work as an engineer, specifically contributions to Civil Engineer and Architect’s Journal such as ‘A new form of viaduct’ (July 1841) and ‘The transverse strain of beams’ (September 1841); and those that came about as a consequence of his flirtation during the 1840s with phrenology which resulted in a number of articles for The Zoist, including ‘Situation of the organ of amativeness’ (July 1844) and ‘The origin of wonder’ (October 1844).
During the period in which the Earth has been peopled, the human organism has grown more heterogeneous among the civilized divisions of the species; as a whole, has been growing more heterogeneous in virtue of the multiplication of races and the differentiation of these races from each other. (Spencer 1857: 451)

It could be inferred, he argued, and verified anthropometrically, that both physically and by extension, mentally, the European was more advanced than the ‘savage’. This could be demonstrated by considering that:

In the relative development of the limbs, the civilized man departs more widely from the general placental type of mammalia than do the lower human races. While often possessing well-developed body and arms the Papuan has extremely small legs: thus reminding us of the quadrumana, in which there is no great contrast between the hind and fore limbs. But in the European, the greater length and massiveness of the legs has become very marked. (Spencer 1857: 452)

Then passing from ‘Humanity under its individual form, to humanity as socially embodied’ Spencer (1857: 453) presents his progressive [and most sociological] argument: that social evolution is also a process of progress from homogeneous to heterogeneous: from simple social arrangements, such as that still seen in ‘existing barbarous tribes’, to complex social arrangements, such as those seen in the modern industrial state.

This process and progress of civilization is marked by increasing differentiation of the structure of institutions, resulting in increased specialization of function; that is, increased division of labour within these institutions, which ‘once commenced tended to become ever more decided’ (Spencer 1857: 480). The process was one through which every tribe or nation would pass. And, because it had already been ‘settled beyond dispute’ from physiology, that ‘organic progress consists in a change from the homogeneous to the heterogeneous’, all change, all progress, is a force embedded in nature: ‘Thus the evolution of a homogeneous society into a heterogeneous one, is very clearly consequent on the general principle, that the many effects are produced by the one cause’ (Spencer 1857: 452, 455, 481).

Yet ‘that societies are not artificially put together, is a truth so manifest’ he wrote in another essay, The Social Organism (1860):

That it seems wonderful that men should have ever overlooked it… You need but to look at the changes going on around… to see that these are neither supernatural, nor determined by the wills of individual men… It has not been by command of any ruler that some men have become manufacturers, while others have remained cultivators of the soil. (Spencer [1860] 1863: 144)

*Quadrumanna: like a monkey.*
And partly making a dig at Carlyle and his ‘Great Man’ theory of historical change, notes that the current widespread industrial development of ‘English society’ can be ascribed,

neither to miracle, nor to legislation. It is not by “the hero as king,” any more than by “collective wisdom,” that men have been segregated into producers, wholesale distributors, and retail distributors. (Spencer [1860] 1863: 144)

**Progress not an Accident but a Necessity**

Spencer’s notion of Progress and of evolution is both naturalistic and cosmic:

Being that which determines Progress of every kind—astronomic, geologic, organic, ethnologic, social economic, artistic, &c.,—it must be concerned with some fundamental attribute possessed in common by these… the only obvious respect in which all kinds of Progress are alike, is that they are modes of change. (Spencer 1857: 8 [emphasis in original])

Change is a necessary. ‘Progress… is not an accident, but a necessity’ he had written in his first book *Social Statics: or, the Conditions Essential to Human Happiness Specified, and the First of Them Developed* ([1851] 1954: 65). Social development is as Spencer regards it, a natural process. One which is ‘governed by immanent principles of growth, independent of human will and one which ‘can never be disrupted by interventionary actions. Society is not a machine or a manufacture of human purposes’ (Peel 1971: xxv).

What sets Spencer’s evolutionism apart from that of Lamarck, is the extent to which Spencer’s stresses ‘competition’ and the ‘survival of the fittest’ as the mechanism for eliciting change. ‘It is precisely this insistence which gave Spencer’s evolutionism its bite and distinguished it from the conventional Victorian ethos of personal betterment and self-help’ (Hawkins 1995: 53). Samuel Smiles for example, had proclaimed:

What some men are, all without difficulty might be. Employ the same means and the same results will follow. That there should be a class of men who live by their daily

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10 Spencer thought little of the biographical approach to history, and doubted its role in sociology, regarding the stories of famous historical figures used as a means to define an era as ‘pieces of historical gossip which cannot in the least effect men’s conceptions of the ways social phenomena hang together’ (Spencer 1904, 1 : 265). Of Carlyle he wrote, that his ‘nature was one which lacked co-ordination, alike intellectually and morally. Under both aspects he was, in great measure chaotic. His ideas of the world and mankind were never reduced to anything like rational order; and his strong emotions, fretted into intensity by his own violent language, rose into gusts of passion carrying him now this way and now that: little if any effort at self-control being made, but rather the rein being deliberately given to whatever feeling was for the time uppermost’ (Spencer 1904, 1: 383). Spencer also touched on the nature-nurture debate when he wrote in ‘The social organism’ ([1860] 1868: 146): ‘Those who regard the histories of societies as the history of their great men, and think that these great men shape the fates of their societies, overlook the truth that such great men are the products of their societies. Without certain antecedents—without a certain average national character, they could neither have been generated nor could they have had the culture which formed them.’
labour in every state is the ordinance of God, and doubtless is a wise and righteous one; but that this class should be otherwise than frugal, contented, intelligent, and happy is not the design of Providence, but springs solely from the weakness, self-indulgence, and perverseness of man himself. The healthy spirit of self-help created amongst working people would more than any other measure serve to raise them as a class, and this, not by pulling down others, but by levelling them up to a higher and still advancing standard of religion, intelligence, and virtue. (Smiles [1859] 1959: 284)

Social Progress and Laissez-faire

The essential difference between Darwin’s and Spencer’s evolution is one of ‘direction’. ‘There is’ writes Peel (1971: 142) ‘no necessary direction in Darwin’s evolution, no necessity for any particular criterion of “fitness” to triumph or for any particular forms to become predominant’. This was ultimately a most contentious aspect of Darwin’s point of view vis-a-vis human and animal development. For Spencer this was not the case. ‘For Spencer evolution was progress and progress was evolution’ and that progress was ever upward (Ruse (1996: 188). Any other possibility would have been intellectually and psychologically difficult for a Victorian thinker (Burrow 1966). Although springing as he did from a Nonconformist background, with an almost obsessive dislike of the social niceties required of polite Victorian social intercourse he nevertheless was the designer of a ‘system’ for understanding the lawful development of social organizations.

The Spencers hailed from Derby, where during the 1830s, William Spencer had been secretary of the Derby Philosophical Society which had been founded by Erasmus Darwin in 1783 (Peel 1971). The environment in which Spencer grew up was industrial and industrious. It was also one with a tradition that fostered scientific and philosophic speculation in an age of political change and increasing secularization.

During the 1830s and 1840s radicalism in the form of agitation for working-class rights, epitomised by Chartism, and the press for middle-class advancement, as represented by the activities of the Anti-Corn Law League strongly influenced the writings of intellectuals, like Carlyle and Spencer. To place Spencer in context is to see him beginning his writing career at the same time that Freidrich Engels (1820–95) was making his observations of the conditions experienced by workers in his father’s cotton-spinning factory in Manchester; which led him in 1845 to publish his ‘masterpiece’ Die lage der arbeitenden klassen in England (The condition of the working class in England).

In fact Engels starts his book with a prefatory reference to Carlyle’s Past and Present in which he praises Carlyle for drawing attention to the ‘emptiness and hollowness of the age’ and for ‘his criticism of competition and the economics of
supply and demand’ continuing with a highly politicised and not unbiased critique of British industrial society (Carver 1981).\footnote{Engels and Karl Marx meet for the first time in 1842.} Spencer’s own work similarly associated and blended ideas drawn from the sphere of economics with those drawn from the spheres of physical and social science.

In \textit{Social Statics} (1851) Spencer introduces the critical link between laissez-faire and ‘ideals of human life and human progress’. In what has been described (by Peel 1971: 82–4) as an avowedly moral work with a certain ‘archaic ring’, Spencer set out to answer questions about the conduct of life and the proper construction of society; opening with the lines:

“Give us a guide,” cry men to the philosopher. “We would escape from these miseries in which we are entangled. A better state is ever present to our imaginations, and we yearn after it; but all our efforts to realize it are fruitless. We are weary of perpetual failures; tell us by what rule we might attain our desire.” (Spencer [1851] 1954: 3)

Spencer had originally wished to call it either \textit{Demostatics}, or \textit{A System of Social and Political Morality}, and it was only after the intervention of John Chapman who worked in an office across the road from the \textit{Economist} that he was persuaded to call it \textit{Social Statics} (Edwards 1993). Spencer had taken up the post of sub-editor of \textit{The Economist} in 1848. \textit{The Economist} which first appeared as a sixpenny weekly newspaper in 1843, was the creation of James Wilson (1805–60) son of a prosperous Quaker woollen manufacturer. As a youngster at the Quaker school, Wilson had displayed a ‘passion for figures’. At the age of sixteen he was apprenticed to a hat manufacturer and being ‘a serious-minded youth with great self-discipline, he took easily to autodidacticism’ spending ‘his spare time in reading a great deal, often late at night’ and ‘It was during this period that he acquired a thorough grounding in the principles of classical economics’ (Edwards 1993: 3). His reading coincided with ‘free-trade becoming an issue for public debate’ and together with the fact that he came from ‘a family strongly in favour of free-trade’ it was natural that ‘political-economy’ as it was then called, should become the dominant influence on his future activities as a publisher. Among the books that were of greatest influence on him in his development as an economic thinker, were Adam Smith’s \textit{Wealth of Nations} (1776), David Ricardo’s \textit{Principles of Political Economy and Taxation} (1817), James Mill’s \textit{Political Economy} (1821) and George Porter’s \textit{Progress of the Nation in its Various Social and Economic Relations from the Beginning of the Nineteenth Century to the Present Time} (3 vols., 1836–43). To this must be added the influence of the events of the 1830s; the activities of the Anti Corn Law League agitators who all firmly believed ‘that society gains when men compete to better their condition’ (Edwards 1993: 8).
The central argument of the book which the similarly self-educated Herbert Spencer wrote and John Chapman published, is that which was also the credo of *The Economist*: *laissez-faire* (from the French ‘let alone’): that ‘the public good is best served by leaving individuals to look after themselves, since government interference in economic affairs tends to upset the natural checks and balances of wealth creation’ (Edwards 1993: 6). Spencer wrote in *Social Statics* that ‘Every man has freedom to do all that he wills, provided he infringes not the equal freedom of any other man’ (Spencer [1851] 1954: 102 [emphasis in original]).

A Stark Individualism

Having read both Malthus and Lamarck, Spencer was fully in agreement with the notions of ‘progress through struggle’. He understood evolutionary change as a natural process, and from his social milieu, as much as from his stint at *The Economist* he was led to embrace and promote a ‘stark individualism’ that would ultimately set him apart from most English social theorists of the late nineteenth century. Indeed, he has been described by one writer (Gordon 1955: 475) ‘as the proponent of the most thoroughgoing individualism ever advanced in English social philosophy’. In *Social Statics* ([1851] 1954: 59) Spencer made clear his stance:

All imperfection is unfitness to the conditions of existence. This unfitness must consist either in having a faculty or faculties in excess, or in having a faculty or faculties deficient, or in both.

A faculty in excess is one to which the conditions of existence do not afford full exercise; and a faculty that is deficient is one from which the conditions of existence demand more than it can perform.

But it is an essential principle of life that a faculty to which circumstances do not allow full exercise diminishes, and that a faculty on which circumstances make excessive demands increases.

And so long as this excess and this deficiency continue, there must continue decrease on the one hand and growth on the other.

Finally, all excess and all deficiency must disappear; that is, all unfitness must disappear; that is, all imperfection must disappear.

Nevertheless, while Spencer did coin the term ‘survival of the fittest’ (first enunciated in *Social Statics* and further developed in *A Theory of Population*) as a better term to describe natural selection, he never advocated (unlike the eugenicists) a formal program for eliminating the unfit from society, seeing in *laissez-faire* a self-regulating and natural spur to social improvement (Bowler [1983] 1989a: 239; Bowler 1989b: 14, 37–9).
Spencer’s:

Justification for free enterprise rested on the claim that struggle was the best means for stimulating everyone to adopt better habits. Instead of eliminating the unfit, the pressure of competition would force everyone to become fitter. This approach did not stress heredity to determine character because it was necessary to assume that everyone could improve him or herself when challenged. (Bowler 1990: 275)

Spencer was very popular in the United States where he toured in 1882. Peel (1971: 2) suggests that Spencer’s ‘message for America was far deeper than its ideological utility for expansionist big business. It was [rather] the promise of order out of chaos’. Peel’s assessment is one which is (perhaps) validated by Spencer’s critical and disapproving evaluation of Carlyle’s personality as one that embodied all that is morally and intellectually ‘chaotic’. A point of view which he shared with others like Galton, and Darwin who saw in Carlyle a man whose talk was ‘racy and interesting, just like his writings’ and yet a man who he regarded as a ‘depressive’ with a tendency to rant and with a ‘mind ill adapted to scientific research’ (Darwin cited in Darwin [1888] 1969, 1: 77–8). The implication is that ‘order’ is a desirable feature of personal character as it is a desirable feature of the structure of society. A paradox when viewed against Spencer’s conception of societies undergoing an organic process of development and change with its implied and potentially unknown and unpredictable outcomes.

Interference and intervention in the social process was anathema for Spencer, a theme that along with the notion that society was an organism, a living thing was endlessly repeated in his work (Peel 1971). The process of civilization he wrote ‘is all of a piece with the development of the embryo or the unfolding of a flower’ (Spencer [1851] 1954: 60). Unlike Galton, Spencer maintained an environmental stance with respect to change for both the individual and the social group. An approach which fundamentally underscores the sociological nature of the project which Spencer conducted from the very beginning of his career, and why he never let go of Lamarck. To have done so:

would have driven a wedge between biological and sociocultural… evolution and so nullified the major premise of the entire Synthetic Philosophy. For the transmission of environmentally-induced traits to the next generation is just what does happen in culture—it is a truism to say it—and to have denied it in biology would, by destroying the unity of all evolution, have weakened the necessity of social evolution. (Peel 1971: 143)

He upheld the Enlightenment faith in human progress, and like Comte he believed ‘that society would benefit if the organisation of social life were guided by science, and not by either traditional (religious) beliefs or irrational utopian ideals’ (Halfpenny 1982: 22). At the same time he believed that progress was a ‘necessity’, the way of
nature and—paradoxically, considering his faith in social life guided by science—beyond the control of human beings. Unlike Condorcet, he never regarded science as an instrument in the battle against human suffering.

**Spencer and Huxley**

In 1893 Spencer responded to T. H. Huxley’s lecture on *Evolution and Ethics* which had been delivered as the Romanes Lecture at Oxford University on May 18, 1893.\(^\text{12}\) *Evolution and Ethics* which had been preceded in 1888 by *The Struggle for Existence in Human Society* contained a refutation of the idea of ‘survival of the fittest’ and *laissez-faire* as Spencer had conceptualized it in his social theory. Huxley argued that the progress of society could not be understood as part of a cosmic process, inimical to human intervention. In the *Prolegomena* written in 1894 to serve as an introduction to the published version of *Evolution and Ethics* he used analogy drawn from horticulture to liken society to a garden which in order to thrive needed tending:

> Not only is the state of nature hostile to the state of art of the garden; but the principle of the horticultural process, by which the latter is created and maintained, is antithetic to that of the cosmic process. The characteristic feature of the latter is the intense and unceasing competition of the struggle for existence. The characteristic of the former is the elimination of that struggle, by removal of the conditions which give rise to it. The tendency of the cosmic process is the adjustment of the forms of plant life to the current conditions; the tendency of the horticultural process is the adjustment of the conditions to the needs and forms of plant life which the gardener desires to raise. (Huxley [1894] 1989: [13] 71)

Huxley ([1894] 1989: [26] 84; [81] 139) maintained that he did not deny that ‘at its origin human society was as much a product of organic necessity as that of the bees’ and ‘men in society are undoubtedly subject to the cosmic process’. In the natural world, the pressure of population increase forced animals to compete for scarce food resources and the struggle to survive tended to eliminate those who could not adapt to changed conditions. In the case of human society, he opined, the cosmic process only operates in civilizations in their most rudimentary state. In his own view:

> Social progress means the checking of the cosmic process at every step and substituting for it of another, which may be called the ethical process; the end of which is not the survival of those who may happen to be the fittest, in respect of the whole of the conditions which obtain, but those who are ethically the best.

> …what we call goodness or virtue—involves a course of conduct which, in all respects, is opposed to that which leads to success in the cosmic struggle for existence. In place of ruthless self-assertion it demands self-restraint; in place of thrusting aside, or treading down, all competitors, it requires that the individual shall not merely respect, but help his fellows; its influence is directed not so much to the

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\(^\text{12}\) The Romanes Lectures were established in 1892 at Oxford University by Professor George Romanes (1848–94). Romanes was a naturalist who early formed a friendship with Charles Darwin whose views on natural selection he enthusiastically promoted in numerous lectures. He wrote *Animal Intelligence* (1881) and *Scientific Evidences of Organic Evolution* (1896).
survival of the fittest, as to the fitting of an many as possible to survive. It repudiates

Both *The Struggle for Existence* and *Evolution and Ethics* questioned such
Spencerian beliefs as the law of progress, the perfectibility of man, laissez-faire social
policy, radical individualism and utilitarian ethics, and the notion that natural evolution
and human social development were commensurate. Huxley’s two essays with their
emphasis on environmental rather than organic change, were fundamentally at odds
with the Lamarckian dynamic of Spencer’s social views (Paradis 1989: 46). Huxley
repudiated the Enlightenment ideal of the ‘constancy of the laws of nature’ in favour
of:

the Malthusian “natural inequality” between population and production, which is to
say between nature and humans… For Malthus the resources of nature were
inadequate for its progeny, which made nature impossible to accept as a social and
ethical norm. (Paradis 1989: 10–11)

Spencer regarded the contents and context of the Romanes Lecture as a personal
attack. In a letter published in the *Athenæum* for August 5 1893, he sought to defend
himself against this attack ‘coming from one whose authority was so great’ (Spencer
1897: 111). ‘I am not aware’ he wrote,

that any one had more emphatically asserted that society in its corporate capacity
must exercise a rigorous control over its individual members, to the extent needful or
preventing trespass one upon another… So far from being, as some have alleged, an
advocacy of the claims of the strong against the weak, it is much more an insistence
that the weak shall be guarded against the strong… And no one has more vehemently
condemned that “miserable laissez-faire which calmly looks on which men ruin
themselves in trying to enforce by law their equitable claims”. (Spencer 1897: 115)

**The Most Efficient Type of Human Being**

However most critical of Huxley’s meliorative views were the ‘nascent eugenicists’
(Paradis 1989). Men like Sir Leslie Stephen (1832–1904) a critic, biographer, and
philosopher father of the novelist Virginia Woolf (1882–1941) and painter Venessa
Bell (1879–1961). Stephen was editor of the *Cornhill Magazine* from 1871, and of the
first 26 volumes of the *Dictionary of National Biography* (1885–91). A popularizer of
Huxley’s term ‘agnostic’ he had in 1870 published *Essays in Free Thinking and Plain
Speaking* and later *An Agnostics Apology* (1893).

In the critique *Ethics and the Struggle for Existence* (1893) published in the
*Contemporary Review*, Stephens wrote that to follow Huxley whose *Evolution and
Ethics* took a decidedly anti-eugenic stance, means that ‘we give inferior races a chance
of taking whatever place they are fit for, and try to supplant them with the least
possible severity if they are unfit for any place’ (Stephen 1893: 170).
In what appears to be an impressionistic blend of Spencer, Bagehot, Quetelet, and Galton, Stephen spoke confidently, if theoretically, of developing the “best stock” of the race in a future “average man” who would combine great intellectual power with physical vigour: “We are engaged in working out a gigantic problem: What is best, in the sense of the most efficient, type of human being?”. (Paradis 1989: 47)

**Galton supplants Spencer**

The second edition of Galton’s *Hereditary Genius* had been issued in 1892 with its denial of nurture in favour of nature as the force determining ‘the physical and mental constitution of the individual’.

He sought to formalize and “humanize” the “survival of the fittest” in a deliberate public policy of hereditary transmission [in which] an oligarchy of breeding experts might manipulate—ever so slightly—conditions of human existence, so as to vary the birth and death rates of favoured groups and thus improve the physical and mental qualities of the average human. (Paradis 1989: 47–8; Galton 1892, 27, 41)

The purifying role of Spencer’s laissez-faireism was thus supplanted by Galton’s artificial selection.

By the 1890s the Spencerian view of human society as one ‘progressing along an indefinite and continuously ascending path was suddenly clouded’ (Kumar 1987: 175). Darwin had ended *Origin of Species* with the statement that since ‘natural selection works solely by and for the good of each being, all corporeal and mental endowments will tend to progress towards perfection’ (Darwin [1858] 1964: 489). Huxley’s interpretation of Darwin suggested that the whole idea of ‘progressive development’ was an illusion, and in the Romanes Lecture he:

> Went out of his way to dispel this comforting illusion and to insist that the evolutionary process was blind, arbitrary and frequently hideously cruel. There was no discernible purpose in evolution, and nothing to justify a belief in progress. The “survival of the fittest” not only was not the same thing as “survival of the best”—as humans understand that term—but was frequently its antithesis. If aggression and selfishness suited the conditions of the time, they would be selected by nature as against tolerance and altruism. “The thief and the murder follow nature as much as the philanthropist”. (Kumar 1987: 176)

The previous twenty years had seen a whole crop of new books about the travails of social life in the modern industrial state. The first English translation of Engels’ *The Condition of the Working Class in England* was published in 1892, ‘General’ William Booth (founder of the Salvation Army) had published *In Darkest England and the Way Out* in 1890. This book contained his ‘solution to the problem of the chronic poor’, which was to collect them from town and country and subject them to ‘a course of regeneration of moral and religious influences’ before sending them ‘on to virgin soils… in other lands… and so laying the foundation… of another Empire to swell to vast proportions in later times’ (Stedman Jones [1971] 1984: 311). Leslie Stephen, considering to what extent such ‘socialistic or religious schemes’ as that proposed by
General Booth might be right or wrong, suggested that it depended on ‘our answer to the question how far they tend to produce a vigorous or enervated race’ and ‘whether they were likely to increase or diminish the number of helpless hangers-on upon the efficient part of society’ (Stephen 1893: 169).

**Looking Backward 2000-1887**

In 1881 Edward Bellamy (1850–98) an American novelist published his utopian *Looking Backward: 2000–1887*, in which the hero Julian West falls asleep in 1887 to awaken in 2000 in a socialist state. In an attack on nineteenth century attitudes to social problems, one of his guides, Dr Leete makes the retort:

> The necessity of mutual dependence should imply the duty and guarantee of mutual support; and that it did not in your day constituted the essential cruelty and unreason of your system…

> A solution which leaves an unaccounted-for residuum is no solution at all; and our solution of the problem of human society would have been none at all had it left the lame, the sick, and the blind outside with the beasts, to fare as they might. Better far have left the strong and well provided for than these burdened ones, toward whom every heart must yearn, and for whom ease of mind and body should be provided, if for no others. Therefore it is… that the title of every man, woman and child to the means of existence rests on no basis less plain, broad, and simple than the fact that they are fellows of one race—members of one human family. (Bellamy [1881] 1957: 107)

Another American, the journalist, economist and social reformer Henry George (1839–97) achieved public acclaim in 1879 with *Progress and Poverty: An Inquiry into the Cause of Industrial Depression and Increase of Want with Increase of Wealth—the Remedy*, which, significantly grew out of an essay titled *What Will the Railroad Bring Us* published in the *Overland Monthly* in October 1868, in which he argued that increase of business and population will benefit the few over the many:

> As a general rule… those who have, it will make wealthier; for those who have not, it will make it more difficult to get. Those who have lands, mines, established businesses, special abilities… will become richer… those who have only their own labour will become poorer, and find it harder to get ahead. (George 1868, cited in George, Jr, [1900] 1960: 177–79 [emphasis in original])

**The Struggle for Existence More Intense**

In *Progress and Poverty* (1879) using a similar tone as that used by A. R Wallace, George maintained that the improvements of ‘the wonderful century’ ‘have sunk so deeply into the popular mind as to radically change the currents of thought, to recast creeds and displace the most fundamental concepts’ and yet ‘invention after invention have neither lessened the toil of those who most need respite, nor brought plenty to the poor’ (George [1879] 1890: 4–6). He observed:
The “tramp” come with the locomotive, and almshouses and prisons are surely the marks of “material progress” as are costly dwellings, rich warehouses and magnificent churches. Upon streets lighted with gas and patrolled by uniformed policemen, beggars wait for the passer-by… (George [1879] 1890: 4–6)

It was becoming evident that:

The enormous increase in productive power which has marked the present century and is still going on with accelerating ratio, has no tendency to extirpate poverty or to lighten the burdens of those compelled to toil. It simply widens the gulf between Dives and Lazarus, and makes the struggle for existence more intense… This association of progress with poverty is the greatest enigma of our times. (George [1879] 1890: 4–6)

George argued that progress of the kind represented by the development of the railway and the growth of great cities resulted in an increasing scarcity of land from which the ‘idle’ landowner benefited at the expense of the ‘productive’ labourer. The main cause of poverty and unemployment was the ‘maldistribution of opportunity to use sites and resources’ and George called for all land to be:

In effect owned by the community and site rent collected for revenue. Then none would have economic advantage, or be able to charge (and retain) a fee from others for permission to live on the earth. (Gilchrist 1979: 2)

To facilitate reform George advocated the institution of a ‘single tax’. The state would collect tax on all land ‘sites’ including that on idle land; the amount collected he argued, would be so great that other taxes like income tax could be done away with, and the surplus used for humanitarian purposes.

A Sort of Fanciful Fatalism

In a work that makes use of the Spencerian sociology of progress and admits that Darwin’s *Origin of Species* had ‘not been so much a conquest but an assimilation’ (George [1879] 1890: 338) which has resulted in a ‘sort of fanciful fatalism’ he asks:

*How* is it possible that a civilization as this, with its railroads, and daily newspapers, and electric telegraphs, should ever be destroyed? While literature breathes but the belief that we have been, are, and for the future must be, leaving the savage state further and further behind us, there are indications that we are actually turning back again towards barbarism. (George [1879] 1890: 380 [emphasis in original])

This theme of social decline and even ‘degeneration’ and questions about the viability of European culture and ‘race’ come to the forefront. Even Spencer, particularly in *The Man Verses the State* (1884) laments the decline of a society based on free-enterprise. State intervention in various forms ensured the ‘survival of the unfittest’ at home, while ‘Accompanying the domestic “retrogression” was an equally

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13 Dives and Lazarus. Dives (From the Latin *dives*, rich) is the quintessential ‘rich man’ and is featured in the Bible in the parable of the Rich Man and Lazarus (Luke xvi, 19).
deleterious and rapacious thirst for military conquest taking the form of desire for colonial empire’ (Paul 1983: 635).

**Pessimism Abroad**

The intellectual and social trends were by no means confined to English-speaking societies at the centre. At the Fifth Session of the Intercolonial Medical Congress of Australasia, held at Brisbane, Queensland in 1899, a paper was presented, invoking the names of Malthus, Spencer and Galton, which warned of the dire consequences of allowing the ‘unfit’ to propagate their kind (Chapple 1899).

Henry George had made a very successful tour of Australia and New Zealand in 1890. He lectured in Australia and saw the country as:

> progressive in thought and action… the land where railroads and telegraphs are publicly owned and operated, where savings banks and a parcel express service are part of the postal system, and where many other things are done as a matter of course by the public which in many other countries would seem revolutionary. (George Jr., [1900] 1960: 522–23)

In the nineteenth century technological systems were seen as endowed with vitality (Williams 1992). In *Progress: Its Law and Cause* (1857: 50) Herbert Spencer ends his essay by reflecting first ‘on the multitudinous changes –material, intellectual, moral caused by printing; or the further extensive changes wrought by gunpowder’. He then deftly illustrates the process of development of a railway system, to show how extensive is the material and social change ‘which railways in action produce on the community at large’ (Spencer [1857] 1972: 50–51). Between 1870 and 1902, Britain succeeded in encircling the globe with telegraphic submarine cables designed to link all its possessions overseas, politically and commercially. ‘The epitome of strategic cables was the “All-Red Route,” a scheme to gird the globe with a cable passing only through British territories’ joining Great Britain, Canada, New Zealand and Australia (Headrick 1981: 163). ‘In 1902 this line was completed, and all parts of the British Empire could henceforth communicate by a cable network upon which the sun never set’ (Headrick 1981: 163; Headrick 1988: 109).

This great artery of communication served to unite in reciprocal thought and action those who lived at the core with those who lived at the periphery. The book, the journal, the newspaper and the scientific conference promoted circulation and

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14 A vitalistic analogy does not go astray here. Williams (1992: 397) suggests that the nineteenth-century development of technological systems blurs the distinction between the organic and the mechanical; she notes, also that the concept of circulation embodied in these systems is one whose origins lay in the development of biological science from the time of William Harvey’s discovery of the circulation of the blood, and ‘furthermore, the term “network” (réseau) was first used to refer to organisms, then to river patterns, and only then to canals and later to railways’.
discussion of topical ideas derived from a half century and more of speculation on the origin of human life and the progress of society.

Among the books which found favour with the educated reading public were those of Herbert Spencer. At end of the nineteenth century, in America, and further afield in Australia, he enjoyed an ‘enormous popularity especially among ordinary people’ although some latterly criticized him for the broad range of his interests, ‘suspicious of his catholic vision’ (Offer 1980: 131). ‘Many novelists’ writes Offer (1980: 131) ‘saw Spencer as an awesome scientific thinker: Jack London… believed him to be the originator of what would be a profound change in the general style of thought’. Offer (1980: 131) goes on to cite the words of the hero of London’s ‘largely autobiographical’ novel Martin Eden (1909) the story of a man who undergoes a ‘personal paradigm shift’ on encountering Spencer’s ideas:

Here was the man Spencer, organizing all knowledge for him, reducing everything to unity, elaborating ultimate realities, and presenting to his startled gaze a universe so concrete of realization that it was like the model of a ship such as sailors make and put into glass bottles. There was no caprice, no change. All was law. It was in obedience to the same law that fermenting slime had writhed and squirmed and put out legs and wings, and became a bird.

Martin had ascended from pitch to pitch of intellectual living, and here he was at a higher pitch than ever. All the hidden things were laying their secrets bare. He was drunken with comprehension.

The ability to generate this personal paradigm shift in his readers should be regarded as Spencer’s gift to intellectual history.

He raised questions that intrigued both the lay public and scholars in particular specialties. His popularity [is] evidenced by the fact that a good many of his works first appeared in serial form as instalments in popular science magazines, and only later were they bound together in book volumes. But even after their publication in magazines, Spencer’s ideas remained popular; indeed, 100,000 copies of his books were sold before the turn of the century—an astoundingly high figure for that time and place. (Turner, Beeghley & Powers 1989: 37)

He changed the context in which scientific discussion took place. He ‘set out to cross boundaries of existing disciplines’ and ‘re-interpret[ed] them’ and in doing so ‘recomposed [them] in a new way’; thereby showing ‘how scientific knowledge is diffused, gives rise to philosophical concepts’ to reveal ‘how problems, notions, themes may emigrate from the philosophical field where they were formulated to scientific or political discourses’ (Foucault 1972: 136-37).

He gave his readers access to the language of evolution, acquainting them with a new vocabulary, one which included phrases such like ‘The theory of evolution’ and the ‘survival of the fittest’. Like Fontenelle he popularized the new knowledge, the new ideas which permeated and penetrated
In the next chapter an effort is made to understand the way in which these ideas were understood and acted upon at the time. The complex interrelationship of terms like Spencer’s ‘survival of the fittest’ Darwinism, Social Darwinism and eugenics is examined in an attempt to unravel their meaning in the context in which they were created and importantly, to examine in what way they were used as a springboard for action.
Chapter 7

The Language of Survival

1. Everyone is now familiar with the Darwinian theory of the origin of species, at least in its main principles and outlines: and nearly all men qualified to form an opinion are convinced of its substantial truth.


Focus of Chapter

In this chapter, more specifically, the focus is placed upon the way in which scientists broadly defined, and writers, both novelists and journalists, made use of the language of their time in order to demonstrate how the idea of human modification and implied perfectibility was presented. In particular attention is directed at what Lovejoy (1936: 14) calls:

Philosophical semantics—[which is] a study of the sacred words and phrases of a period or movement, with a view to a clearing up of their ambiguities, a listing of their various shades of meaning, and examination of the way in which confused associations of ideas arising from these ambiguities have influenced the development of doctrines, or accelerated the insensible transformation of one fashion into another, perhaps its opposite.

Mid-nineteenth century and mid-twentieth century academic commentaries upon these words and phrases are discussed. In particular the term ‘survival of the fittest’ a phrase which has become part of common coinage, and the notion of ‘efficiency’ are appraised to demonstrate their ‘affective’ connotations and to show how the ambiguity inherent in these terms, especially of ‘survival of the fittest’, ‘are capable of independent action as forces in history’ (Lovejoy 1936: 14).

This chapter also makes use of Lovejoy’s (1936: 19) suggestion that the historian of ideas investigate the manifestation of specific ideas in ‘the collective thought of large groups of persons, not merely of the opinion of a small number of profound thinkers or eminent writers’. By examining the way in which social observers unconnected with the social sciences, like British Prime Minister Benjamin Disraeli, and the now largely forgotten Victorian writers William Rathbone Greg and William Winwood Reade made use of, in the first case the essay, and in the second case the novel to
illuminate current thinking on issues concerning Darwinian evolutionary theory. Reade’s novels of faith and doubt in particular demonstrate to some extent the Lovejovian (1936) concept of ‘metaphysical pathos’ in action. The notion of a predictable world governed by a sense of spiritual ‘Oneness’ which supposedly operated before the Darwinian revolution is violated and transformed, to use Lovejoy’s (1936: 13) words, by an awareness of ‘troublesome cleavages and disjunctions of things’. This is a condition which is nevertheless also identifiable in Carlyle’s responses earlier in the century to the disruptive forces of both political revolution and modern industrializing society.

**Darwinism, Social Darwinism and Eugenics: A Problem of Clarification**

A number of writers (Harris 1968; Rogers 1972; Bowler 1990; Halliday 1991; Jones 1980, 1994;) have drawn attention to the complexities that surround the discussion of biology and society in the late nineteenth century. The difficulty they argue usually results from attempts to provide a precise and all-encompassing definitional description of a phenomena which in itself is philosophically and literally imprecise. In particular this difficulty arises in the first place when an attempt is made to understand the terms ‘Darwinism’ and ‘Social Darwinism’ and in the second place to understand these in relation to phrases like Herbert Spencer’s ‘survival of the fittest’ and Galton’s eugenics.

**Darwinism**

Darwinism is usually understood to refer to the theory of Natural Selection, that is the idea that over many generations those individuals, human or animal, whose ‘favourable’ individual differences and variations best equip them ‘in the great and complex battle for life’ pass those adaptive characteristics on to their offspring (Darwin [1859] 1964: 130). Darwin’s original statement from the *Origin of Species* is as follows:

> As many more individuals of each species are born than can possibly survive; and as consequently, there is a frequently recurring struggle for existence, it follows that any being, if it vary however slightly in any manner profitable to itself, under the complex and sometimes varying conditions of life, will have a better chance of surviving, and thus be naturally selected. From the strong principle of inheritance, any selected variety will tend to propagate its new and modified form. (Darwin [1859] 1964: 68)

‘Natural Selection or the Survival of the Fittest’ was a long-term and subtle process which Darwin envisioned as acting unseen to change the makeup of an organism:
It may metaphorically be said that natural selection is daily and hourly scrutinising, throughout the world, the slightest variations; rejecting those that are bad, preserving and adding up all that are good; silently and insensibly working, whenever and wherever opportunity offers... We see nothing of these slow changes in progress, until the hand of time has marked the lapse of ages, and then so imperfect is our view into long-past geological ages, that we see only that the forms of life are now different from what they formerly were.

In order that any great amount of modification should be affected in a species, a variety when once formed must again, perhaps after a long interval of time, vary or present individual differences of the same favourable nature as before; and these must again be preserved, and so onwards step by step. (Darwin [1859] 1964: 112–13)

Gertrude Himmelfarb (1968: 315) in her effort to ‘place’ the original theory in relation to all those social theories claiming descent from Darwin, argues that the essential features of that theory ‘were clearly visible at birth’, adding that ‘Darwin formally incorporated them into the patronymic’. She suggests that it is to Darwin’s original ‘multi-barrelled’ title On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life, that we should look as the source for ‘most of the social theories seeking legitimacy in the name of Social Darwinism’; though she also notes that most of the ideas which Darwin’s suggestive words make manifest are the legacy of doctrines from other spheres of intellectual life.¹ This is particularly so she writes, in the case of ‘the most common variety of Social Darwinism: laissez fairism… the free, unrestrained competition of individuals’, a doctrine ‘born at least three quarters of a century before the Origin,’ and which as Darwin himself informed his readers: [I]s the doctrine of Malthus, applied to the whole animal and vegetable kingdoms’. It is the case, she argues that ‘By a curious incestuous inversion… Darwin was made to legitimise both Malthus and Adam Smith (Himmelfarb 1968: 315; Darwin 1859).

Barzun (1942) also draws attention to the difficulty encountered by both scientists and non-scientists when reading Origin:of Species:

No doubt the “favoured races” mentioned in the Origin of Species referred to pigeons, but the extension of the term to man is easy to make; indeed it seemed to receive Darwin’s own approval on many a page of the Descent of Man, where the struggle of races was a part of evolutionary advance. (Barzun 1942: 103)

¹ The term ‘Social Darwinism’ came into general use in the early 1900s. The Athenaeum, 1 (1903): 41-2, contained a review in which Prince Peter Kropotkin’s (1842–1921) book Mutual Aid (1902) was assessed as an attack on ‘Social Darwinism’. Kropotkin was a geographer and active revolutionary who argued, contrary to the Darwinian notion of the ‘survival of the fittest’, that cooperative behaviour enhanced a group’s chances of survival and was the key to the evolution of species.
Darwin’s Metaphorical Language

Darwin’s tendency to use ‘metaphorical concepts’ has been commented on by James Allen Rogers (1972). Rogers cites Morse Peckham (1959: 32) who asked:

Is it true that what Darwin said had very little impact, but what people thought he said, that is, what they already believed and believed to have been confirmed by Darwin, had enormous impact? (Peckham 1959: 32; Rogers 1972: 268)

Rogers (1972) also notes the confusion this has caused. He cites those like Richard Hofstadter (1944) who examined the social impact of Darwinism in the United States at the end of the nineteenth century. He writes that Hofstadter suggests that on the one hand American society of the late nineteenth century was:

Competitive in a way that reflected the “tooth and claw version” of Darwin’s theory of natural selection, and on the other hand, natural selection was a “neutral” theory which did not have any inherent social application. (Rogers 1972: 267)

Importantly, Hofstadter ([1944]: 1992: 167) observes how (the variety of Social Darwinism that was) the ‘eugenics craze’ despite its ‘fundamental conservatism’ was embraced by usually individualistic Americans at a time when they ‘liked to think of themselves as reformers’. Like other reform movements of the late nineteenth century, ‘eugenics accepted the principle of state action toward a common end and spoke in terms of the collective destiny of the group rather than of individual success’ (Hofstadter [1944] 1992: 167). It was he argues, the quintessential ‘modern’ movement, one which fitted the temper of the times. A movement embodying in its philosophy the ‘general trend of thought in the Progressive era’ characterised by:

A rising regard for the collective aspects of life… one which was not socialistic, but was based upon an increasing recognition of the psychological and moral relatedness of men in society. (Hofstadter [1944] 1992: 167)

Rogers (1972: 266) examines this ambiguity and also asks: ‘Why was Darwin’s theory… able to organize a school of influential social thought while similar theories were either rejected or died in obscurity?’ Both Malthus and Spencer presented creditable theories of human evolution. Malthus contributed the idea of the struggle for survival. Spencer contributed the term ‘survival of the fittest’ which eventually became a favourite catchery of the so-called Social Darwinists. Yet it is Darwin who is credited with these terms in the popular mind (Rogers 1972).

Both Rogers (1972: 268) and Young (1971: 461–4) suggest that Darwin used language which was not appropriate for the scientific enterprise. Hofstadter ([1944] 1992) in his American thesis suggests that the strength of the attractiveness of Darwin’s theory lay in just its appearance at a time—the immediate post Civil War period—when there was an increase in biblical literature and biblical studies within a
liberal intellectual climate. A climate which encouraged the acceptance of new scientific ideas via ‘religious journals and popular magazines’ (Hofstadter [1944] 1992: 14):

The rise of biblical criticism and comparative religion, the general relaxation of fundamentalist faith encouraged by the liberal clergy, prepared many Americans for the acceptance of Darwinism. (Hofstadter [1944] 1992: 14)

The flexibility inherent in the language of Origin of Species was such that Darwin’s keenest follower in America, the botanist Asa Gray (1801–88) could without difficulty, when his own point of view was challenged, declare the work [Origin of Species] ‘compatible with theism’ (Hofstadter [1944] 1992: 18).

Noting that Darwin’s theory of natural selection is first and foremost a scientific theory, Americans could and did adopt any of the many positions along the continuum of interpretations which [their reading of] Origin of Species enabled them to take:

Charles Loring Brace, a leading social worker and social reformer, read it thirteen times and emerged with the assurance that evolution guaranteed the final fruition of human virtue and the perfectibility of man. “For if the Darwinian theory be true, the law of natural selection applies to all moral history of mankind, as well as the physical. Evil must die ultimately as the weaker element, in the struggle with good”. (Brace [1894] cited in Hofstadter [1944] 1992: 16)

Or their reading could take them to another place on the continuum, one which took the ‘struggle with good’ and evil as its starting point. As Hofstadter ([1944] 1992: 89) points out, the age in which Darwin and Spencer and others:

Formulated their philosophies was one of great intellectual insecurity… many [men and women] were uncertain how much of their religion would be left standing after natural selection had been fully accepted, others were quite as troubled by questions about what Darwinism would mean for the moral life. Spencer and the evolutionary anthropologists promised them that it would mean progress, perhaps perfection. The Malthusian element in Darwinism, however, pointed to an endless struggle for existence regulated by no sanction more exalted than survival.

The [misunderstood] Spencerian doctrine of the ‘survival of the fittest’, could stand along with those dour interpretations of Darwin’s writing which supported more extreme positions on the continuum such as that espoused by the eugenists.

Young (1971: 461) notes that ‘anthropomorphic, voluntarist descriptions of natural selection occur throughout On the Origin of Species’. He further argues that throughout the book ‘Natural selection is described as “acting”, and “nature’s power of selection” is a recurring phrase’. Young in his reading holds that:

We find Darwin repeatedly writing in florid terms about “visual powers” and “skills” of his putatively natural mechanisms: “there is a power always intently watching”; “natural selection will pick out with unerring skill each improvement”. (Young 1971: 463 [emphasis added])
While all this Young comments, may be regarded ‘as rather obvious and innocent’, he adds that Darwin himself stated that he favoured ‘natural selection’ ‘for the sake of brevity’; and when his publisher objected to the term, Darwin apologised for its being obscure, and wrote to Lyell, ‘Why I like the term is that it is constantly used in all works on breeding’ (Darwin cited in Young 1971: 464).

Breeders used the term to refer to any agency operating outside the sphere of man’s control; it was just a convenient way of contrasting unknown sources of change with deliberate ones. (Young 1971: 464)

However the ways in which Darwin wrote about it created all sorts of difficulties, which led him to suggest to Lyell that if he had to start all over again he would have used the term ‘natural preservation’ instead, although even this term is ambiguous.

In later editions of the Origin Darwin tried to escape the implication that selection was involved in both the occurrence and the preservation of variations. Once again, however, he used the analogy to artificial selection. ‘When man is the selecting agent’, he wrote, ‘we clearly see that the two elements of change are distinct: variability is in some manner excited, but it is the will of man which accumulates the variations in certain directions; and it is this latter agency which answers to the survival of the fittest under nature.’ (Young 1971: 465 [emphasis added])

The problem was that:

Lacking a truly technical, unambiguous lexicon Darwin was forced into annexing a vocabulary much of which had already a vivid connotative aura: *selection, favoured races, fitness and fittest, progress*. We can see with hindsight that these were barely adequate counters for biology to work with. (Morton 1984: 63)

Peckham (1959: 20) argues similarly:

The difficulty arose because Darwin did not have the word “ecology.” He was in fact an ecological thinker, and in ecology words like “competition” and “cooperation” are too inexact, too value-weighted, too metaphorical, and too anthropomorphic to be used at all.

Morton (1984) suggests that the Victorian era was suffused with ‘evolutionism’ which:

was a pervasive doctrine for all those unwilling to look more deeply into the raw facts alleged to support it. There was above all its emotional appeal, which dovetailed so neatly with those strands of Victorian thought which were prone to see all temporal events as coalescing into a single progressive stream... And it could also exist quite separately from any biological considerations at all; for it pre-dates not only Darwinism itself but systematic research into the life sciences altogether. It has formed a coherent body of opinion as long as there have been theories of progress at all, which in European terms means from the time of Condorcet’s division of all history into ten stages reaching from barbarism to perfection. Even after 1860 evolutionism may be found being preached with only the most cursory side-glance at biology. (Morton 1984: 59)
The *Vestiges of Creation*

He refers in this to Robert Chambers’s (1802–71) *Vestiges of the Natural History of Creation*, 1844 a ‘bestseller on a scale far outstripping the *Origin*’s immediate success a decade later’; a book, some of whose ideas although scandalous at the time ‘were assimilated, even by the Established Church, much more easily than Darwinian natural selection’ (Morton 1984: 22). Chambers, an Edinburgh publisher and amateur scientist, ‘made bold speculations’ about humankind’s ‘place in the scheme of things’ attempting ‘a grand synthesis that would pull together the whole of geology, natural history, and the moral sciences’ (Bowler [1983] 1989a: 142; Bratchell 1981). He proposed an evolutionary theory in which he speculated on the gradual and progressive development of organic life:

Chambers argued that it was inconsistent to accept the uniformity of natural laws in the application to the history of the earth (as Charles Lyell had done) and not to the history of organic life. (Bratchell 1981: 19)

That is, human beings were part of natural order. He made use of the work of the phrenologist George Combe to extend this to include the development of the human mind and brain (Bratchell 1981).

Chambers, achieved notoriety in his own day for this anonymously published (the name of the author was not made public till 1881) book on evolution, a book which was heavily, often viciously criticised. Criticised by the church because it threatened the status quo and criticised on scientific grounds and by the scientific community because it threatened the same. It was criticized by the geologist Adam Sedgwick (1785–1873) who thought that ladies should be protected from its message, as well as by Darwin and Huxley for its ‘hopeless scientific blunders’, such as resurrecting the mechanism of spontaneous generation and the notion that one species could metamorphose into another. Darwin had read *Vestiges* in 1844, and in a letter to Joseph Hooker made the comment that while he considered that ‘the writing and the arrangement are certainly admirable… his geology strikes me as bad, and his zoology worse’ (Darwin cited in Darwin [1888] 1969, 1: 333). Darwin’s son Francis, as editor of his father’s letters, refers to this particular item of correspondence making the comment:

My father’s copy gives signs of having been carefully read, a long list of marked passages being pinned in at the end. One useful lesson he seems to have learned

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2 Robert Chambers wrote numerous essays and books about Scotland, its geography, people and culture; including a biography *The Life and Works of Robert Burns* (4 vols. 1851). He combined with his brother William (1800–83) in a number of publishing ventures, and after the success of William’s *Chamber’s Edinburgh Journal* the brother’s established the publishing firm of W & R Chambers. Robert’s son Robert (1832–88) became head of the firm in 1888, and continued the *Journal* until his death. In 1840 Robert was elected a Fellow of the Royal Society of Edinburgh. The first edition of *Chambers’s Encyclopaedia* was published in ten volumes between 1859 and 1868. It was based on a German model, the 10th edition of *Konvolut-Lexikon*. 
from it. He writes: “The idea of a fish passing into a reptile, monstrous. I will not specify any genealogies—much too little known at present.” He refers again to the book in a letter to Fox [Charles Darwin’s second cousin, William Darwin Fox] February, 1845; “have you read that strange, unphilosophical, but capitally-written book, the ‘Vestiges’: it has made more talk than any work of late, and has been by some attributed to me—at which I ought to be much flattered and unflattered.” (Darwin [1888] 1969, 1: 333n)

An idea which nevertheless seems to have struck a chord in the popular imagination, as a version of this appears as a parody in the work of at least one Victorian novelist (Benjamin Disraeli, see below, p. 194) as somehow encapsulating the idea of transmutation.³

Yet Robert Chambers is now remembered by many as an encyclopaedist and co-founder of the publishing house of W. R. Chambers, and by a few as the author of an influential work on evolution. Indeed Robert M. Young (1971: 269) suggests that ‘Herbert Spencer is second only to Chambers in the degree to which historians have denigrated his scientific status’. A point of view supported to some extent by Milton Millhauser who regards Chambers not as a ‘pre-cursor of Darwin’ but as a pre-cursor of Spencer, in that in Vestiges Chambers attempted both to construct an evolutionary theory and to ‘to associate with it, a view of the universe as governed by the manifest ramifications of a single fundamental law’ (Millhauser 1959: 87; see also Himmelfarb [1959] 1962, Ch. 10 ‘Climate of opinion on the eve of the Origin’).

The popularity that Vestiges as a ‘bestseller’ achieved among the reading public, and its role in furthering the cause of evolutionary thinking cannot be overlooked. It is a work, though regarded as flawed in many respects, did much to ‘bring a smattering of technical knowledge along with all-embracing theory, into a great many average homes’ (Millhauser 1959: 85). It introduced the Victorian household to ‘significant facts about embryology, comparative anatomy, and palaeontology’, and therein ‘they were being educated toward 1859’ (Millhauser 1959: 85). Vestiges went through four editions in six months, ten editions in ten years, sold nearly 24,000 copies and was translated twice into German and once into Dutch. ‘The general public lapped it up with enthusiasm’ (de Beer 1969: 32). It is a book which, according to Morton, is representative of the ‘Romantic impulse toward progressive evolution’ (Morton 1984: 22). It is this Romanticism which was brought to an end by Darwin and his language of metaphor. Morton (1984: 22) calls this the Darwinian ‘counter-revolution’. From ‘soft’ evolutionism to ‘hard’ Darwinism (Morton 1984: 133). Two writers epitomise this transition: Benjamin Disraeli and Winwood Reade.

We Had Fins—We May Have Wings

In 1847, four years after the appearance of Vestiges, Benjamin Disraeli wrote a novel called Tancred, or the New Crusade. In it a titled lady engages in the following conversation with the son of a Duke, Tancred, the hero of the story:

After making herself very agreeable Lady Constance took up a book which was at hand, and said, ‘Do you know this?’ And Tancred, opening the volume, which he had never seen, and then turning to its title-page, found it was The Revelations of Chaos, a startling work just published, and of which a rumour had reached him.

“No,” he replied, “I have not seen it.”

“I will lend it you, if you like; it is one of those books one must read. It explains everything, and is written in a very agreeable style.”

“It explains everything!” said Tancred; “it must indeed be a very remarkable book!”

“I think it will suit you,” said Lady Constance.

“To judge from its title, the subject is rather obscure,” said Tancred.

“No longer so,” said Lady Constance. “It is treated scientifically; everything is explained by geology and astronomy, and in that way. It shows you exactly how a star is formed; nothing can be so pretty! A cluster of vapour, the cream of the milky way, a sort of celestial cheese, churned into light. You must read it; ’tis charming.”

“Nobody ever saw a star formed,” said Tancred.

“Perhaps not. But you must read the ‘Revelations’; it is all explained. But what is the most interesting is the way in which man has developed. You know, all is development. The principle is perpetually going on. First there was nothing, then there was something else; then, I forgot the next, I think shells, then fishes; then we came. Let me see, did we come next? Never mind that; we came at last. And the next stage will be something very superior to us; some thing with wings. Ah! that’s it: we were fishes, and I believe we will be crows. But you must read it.”

“I do not believe I was ever a fish,” said Tancred.

“Oh but it’s all proved! by geology, you know. You see exactly how everything is made: how many worlds there have been; how long they have lasted; what went before, and what comes next. We are a link in the chain, as inferior animals were that preceded us; we in turn shall be inferior; all that remains if us will be some relics in a new red sandstone. This is development. We had fins: we may have wings.” (Disraeli [1847] 1904: 129–30)

This interaction bears a striking similarity to that between the philosopher and the Marquise in Fontenelle’s Entretiens and its likely that the intention of the author in this case was somewhat similar: to educate and amuse about the latest fashion in science all at the same time.
Could our Minds be Made Visible we Would Find Them Tailed

In 1872 Winwood Reade, who Henry George, regarded as the ‘first Darwinian’ (Bannister 1970) published The Martyrdom of Man. Written in the wake of Origin of Species and in line with a Spencerian notion of progress, it bears a similarity to Condorcet’s Esquisse in its scope and vision, being:

an Impressionistic survey of “universal” history written in an epic and expansive style, by a freethinker contemptuous of all politically pigmented readings of history but respectful almost to excess of the biological vision of the past. (Morton 1984: 64)

Reade was able in an immediate and accessible way to describe the theory of evolution as described by Darwin, although elements of Vestiges remain:

The method of development is still being actively discussed, but the fact is placed beyond doubt. Since “The Origin of Species” appeared philosophical naturalists no longer deny that the ancestors of man must be sought for in the lower kingdom... begins life as an ambiguous speck of matter indistinguishable from the lowest form of the lowest animal or plant. He next becomes a cell; his life is precisely that of the animalcule. Cells cluster round the primordial cell, and man is so far advanced that he might be mistaken for an oyster; he grows still more and it is clear that he may be mistaken for a fish; he then passes into a stage which is common to quadrupeds, and next assumes a form which can only belong to quadrupeds of the higher type. At last the hour of his birth approaches; coiled in the womb he sits, the image of an ape; a caricature of the man he is to be. He is born... and even in his boyhood his fondness for climbing trees would seem to be a relic of the old arboreal life. Since, therefore, every man has been himself in such a state that the most experienced observer could not with the aid of the best microscopes have declared whether he was going to be man or plant... man or reptile... man or monkey; why should it appear strange that the whole race has also had its animalcule and its reptile days? But whether it appears strange or not, the public must endeavour to accustom its mind to the fact which is now firmly established, and will never be overthrown. (Reade [1872] 1896: 391)

Reade ([1872] 1896: 391) then considers that the human mind is:

constructed on the same pattern as those of lower animals. To procure food; to obtain a mate; and to rear offspring; such is the real business of life with us as it is them.

And as far as the human intellect is concerned Reade holds that it too betrays its origins in the ‘lower form’; ‘could our minds be made visible’, he writes ‘we should find them tailed’ (Reade [1872] 1896: 391). However, ‘if we examine the minds of the lower animals, we find in them the rudiments of our talents and our virtues’ (Reade [1872] 1896: 391).

The future is one in which humanity will achieve its apotheosis ‘not by idle prayers and supplications’ but by using all those ‘mental achievements which have already “raised him to his present state”’ (Reade [1872] 1896: 512–13). ‘The interest which is now felt in politics will be transferred to science; the latest news from the...
experimenting room of the biologist will be eagerly discussed’ (Reade [1872] 1896: 514):

These bodies which we now wear, belong to the lower animals; our minds have already outgrown them; already we look upon them with contempt. A time will come when Science will transform them by means which we cannot conjecture... Disease will be extirpated; the causes of decay will be removed; immortality will be invented. And then, the earth being small, man will migrate into space, and... Finally men will master the forces of nature; they will become themselves architects of systems, manufacturers of worlds. Man will then be perfect; he will then be a creator; he will then be what the vulgar worship as a god. (Reade [1872] 1896: 514)

Reade (1872) put forward an argument which could be regarded as consistent with mid-Victorian views about human development. The journalist-traveller constructed a picture of society which, in the minds of his readers equated 'lower form' with 'savage life in Africa' within a context of imperial nation-building (Bannister 1979: 121).

Significantly Reade was willing to venture where other contemporary naturalists and anthropologists were as yet loathe to go (Morton 1984: 65):

All living creatures of the higher grade are memorials of conjugal affection and parental care: they are born with a tendency to love, for it is owing to love that they exist. Those animals that are deficient in conjugal desire or parental love, produce no offspring, and are blotted out of the copy book of Nature... The affections therefore are weapons, and are developed, according to Darwin's Law. Love is cruel as the shark's jaw, as terrible as the serpents fang. The moral sense is founded on sympathy, and sympathy is founded on self-preservation. (Reade [1872] 1896: 445)

Morton (1984: 65) suggests that Reade being a 'Darwinian moralist', is 'prepared to point without flinching to pain and waste as the ultimate driving force in history' citing the following lines as evidence:

In all things there is cruel, profligate, and abandoned waste. Of all animals that are born a few only can survive; and it is owing to this law that development takes place. The law of Murder is the law of Growth. Life is one long tragedy; creation one great crime. (Reade [1872] 1896: 520; Morton 1984)

Reade's language is strong language; his message is a strong message. It is easy to get lost in the supposed Social Darwinist implications suggested by these lines. For as Bannister (1979) points out Reade was also a Comtean. And a reformist. As a follower of Comte, the law of development becomes the triumph of science over superstition. In Martyrdom Reade's ultimate aim is the exposition of a thesis which treats of the 'triumph of positivism over orthodox religion' (Bannister 1979: 121). While for Reade pain and waste may have been the driving force in history he also believes as firmly as did Condorcet in the overcoming of human physical and spiritual limitation by good social action. In following a Comtean program Reade is arguing for the ultimate organization of society along scientific lines.
Unlike *Vestiges*, where ‘the orderly plan of nature’s advance is mapped out… by the Creator’ Reade banishes the Creator (Bowler [1983] 1989a). At least as the Creator is conceived of as benevolent:

“semi-human Providence”’ [as] an anthropoid Deity, a Constructive Mind, a Deus Paleyensis, a God created in the image of a watchmaker’ and argues that ‘The universe is anonymous; it is published under secondary laws; (and that ) these at least we are able to investigate. (Reade [1872] 1896: 521)4

‘Christianity’ he continues, ‘is unsuited to the mental condition of the age’ (Reade [1872] 1896: 527).

Reade (1872) is referring here to the writings of Archdeacon William Paley (1743–1805). Paley wrote a number of well-received theological works which emphasised the purposefulness of God’s work. The most influential was *Natural Theology; or Evidences of the Existence and Attributes of the Diety* (1802). In it he championed the powerful ‘argument from design’ which held that the complex structure of the world and all living things could only have been created by an Intelligent Designer and not by nature itself (LeMahieu 1976). Paley made use of the analogy of the watchmaker and the watch. The intricacy of the mechanism of a watch presupposes the skill and creativity of the watchmaker—a watch does not create itself:

Contrivance must have had a contriver, design a designer, whether the machine immediately preceded from another machine or not. That circumstance alters not the case. That other machine may, in like manner, have proceeded from a former machine: nor does that alter the case; the contrivance must have had a contriver. That former one from one preceding it: no alteration still; a contriver is still necessary. No tendency is perceived, no tendency toward a diminution of this tendency… (Paley [1820] 1963: 10)

Further:

Contrivance, if established, appears to me to prove everything which we wish to prove. Among other things, it proves the personality of the Deity, as distinguished from what is sometimes called nature, sometimes called a principle; which terms, in the mouths of those who use them philosophically, see to be intended to admit and to express efficacy, but to exclude and to deny a personal agent. Now, that which can contrive, which can design must be a person. (Paley [1820] 1963: 34 [emphasis in original])

Paley’s language is here both very insistent and very clear on the point that there is a designer; an anthropomorphism which even Darwin could not avoid. Paley creates a delightful certainty that God is on our side:

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4 Until 1921 Paley’s works were required reading for students seeking admission to study theology at Cambridge University. After studying medicine for two years at Edinburgh University, Charles Darwin, with a view to entering the church, became a student at Christ’s College, Cambridge in 1828.
Under this stupendous Being we live. Our happiness, our existence, is in his hand. All we expect must come from him. Nor ought we to feel our situation insecure. In every nature… we find attention bestowed upon even the minutest parts. The hinges in the wings of an earwig, and the joints of its antennae, are as highly wrought as if the Creator had had nothing to else to finish. We see no signs of diminution of care by multiplicity of objects, or of distraction of thought by variety. We have no reason to fear, therefore, our being forgotten, or overlooked, or neglected. (Paley [1820] 1963: 85)

It is also here that the problems—psychological as well as philosophical—which the complete removal of a the Deity creates for the Winwood Reade’s audience are revealed. To eliminate such a munificent God is to cut the umbilical cord and it is this state of existential anxiety which leads Arthur Elliot the main protagonist of Reade’s other notable work *The Outcast* (1875) to commit suicide.

EllegÜrd in his analysis of the public reception of Darwin’s theory of evolution, suggests that the essential difference between *Vestiges* and *Origin of Species* lay in the religious and ideological ramifications of the latter. While *Vestiges* ‘appealed to the imagination by treating Evolution as concerning the whole of nature, and not just the organic world’, it ‘never achieved the proportion of Darwinism’, particularly among the scientific élite. The public while it was not quite sure ‘in what way Darwin was more significant than Chambers’ knew by the ‘stir’ he caused, that he was. ‘Darwinism concerned, as one popular commentator put it, “the tremendous issues of life”’ (EllegÜrd 1990: 333).

The *Descent of Man*

This considered, it is perhaps surprising that Darwin made no overt attempt, in *Origin of Species* to join his theory of natural selection to a theory of human social development and change. He had written to A. R. Wallace on 22 December 1857 expressing the opinion that as far as human evolution is concerned ‘the whole subject is surrounded with prejudices, though I fully admit that it is the highest and most interesting problem for the naturalist’ (Darwin [1857] cited in Darwin [1888] 1969, 1: 109). However, he followed *Origin of Species* with *The Descent of Man and Selection in Relation to Sex* (1871) in which work he attempted to bring ‘human nature within the scope of natural selection’; and unapologetically, as evidenced in that part of Chapter 5 titled ‘Natural selection as affecting civilized nations’ gave ‘explicit approval of the transference of biological concepts to society’ (Darwin [1871] 1883: 128).

It is a ‘chapter of great interest’ writes Gloria Mc Connaughey (1950: 398), ‘in that it suggests many crude theories of racial and national supremacy’, from which ‘one could conclude… that a strict program of eugenics is necessary for the improvement of society’. Mc Connaughey quotes from Darwin in evidence and support of this view,
the following often cited passage which is here given in full. It may be noted that Darwin begins this sub-section by acknowledging that since he had ‘hitherto only considered the advancement of man from a semi-human condition to that of the modern savage… some remarks on the action of natural selection on civilized nations may be worth adding’ and since ‘this subject… has been ably discussed by W. R. Greg, and previously Mr. Wallace and Mr. Galton. Most of my remarks are taken from these three authors’ (Darwin [1871] 1883: 133).

With savages, the weak in body or mind are soon eliminated; and those that survive commonly exhibit a vigorous state of health. We civilized men on the other hand, do our utmost to check the process of elimination; we build asylums for the imbecile, the maimed and the sick; we institute poor-laws; and our medical men exert their utmost skill to save life of everyone to the last moment. There is reason to believe that vaccination has preserved thousands, who from a weak constitution would formerly have succumbed to small-pox. Thus the weak members of civilized societies propagate their kind. None who has attended to the breeding of domestic animals will doubt that this must be highly injurious to the race of man. It is surprising how soon a want of care, or care wrongly directed, leads to the degeneration of a domestic race; but excepting in the case of man himself, hardly anyone is so ignorant as to allow his worst animals to breed. (Darwin [1871] 1883: 133–34)

Darwin held that because humankind had reached its present high level of development as the result of ‘struggle for existence consequent on his rapid multiplication’:

if he were to advance still higher he must remain subject to severe struggle. Otherwise he would soon sink into indolence, and the more highly-gifted men would not be more successful in the battle for life than the less gifted. (Darwin [1871] 1883: 618)

Even on the most mundane level Darwin considered struggle the motivating force: ‘When a poor man becomes moderately rich, his children enter trades or professions in which there is struggle enough, so that the able in body and mind succeed best’ (Darwin [1871] 1883: 135). The exercise of the Darwinian principle of (natural) selection through struggle is active in all aspects of human life. This was the austere message of Winwood Reade, for whom the antidote was an almost existential self-

5 W. R. Greg wrote essays on social and political themes. Including Essays on Social and Political Science (1854), Literary and Social Judgements (1869), and Miscellaneous Essays (1884). He wrote Rocks Ahead (1874) in which he lamented the rising power of the lower classes and the industrial decline of England.

6 McConnaughey, writing in 1950, is acutely aware of the implications of the misuse of scientific ideas for social, political and religious ends. She draws attention to G. H. Parkin’s thesis Charles Darwin’s Influence on Religion and Politics of the Present Day (University of Chicago, 1942) in which a link is made between the Descent of Man and Hitler’s Mein kampf (1925; trans. 1939), and Jacques Barzun’s Darwin, Marx, Wagner (Boston, 1941) which is critical of the way Darwinism was appropriated for socio/political purposes. Halliday (1971) critiques this approach to reading Social Darwinism holding that this ‘tends to reduce the content of Social Darwinism to the merest of positional ideologies and to the simplest of assertions about the process of evolution’; although it is interesting to note that Halliday himself takes a narrow view of his subject reducing as he does Social Darwinism to Eugenics. Greta Jones (1984; 1990) cautions about ‘writing history backwards’ and reading back our particular concerns onto the intellectual accomplishments of another era, a practice which distorts and limits our view.
sufficiency and a commitment to temporal life, wherein the righteous would pin their 

hope on the future ‘and coin the gold of their heart in useful actions instead of burning 
it in incense on an imaginary throne’ (Reade [1872] 1896: 537 [emphasis added]).

‘Our Religion therefore is Virtue, our Hope is placed in the happiness of our posterity; 
our Faith in the Perfectibility of Man’ (Reade [1872] 1896: 537). Faith in the 
‘perfectibility of man’ was also the message of Galton whose ideas through the 
recently published Hereditary Genius are very present in Descent of Man. Equally, 
Darwin’s use of the work of the economist and essayist William Rathbone Greg 
(1809–81) is significant.

**On the Failure of “Natural Selection” in the Case of Man**

William Rathbone Greg had written a controversial and ‘widely circulated’ article for 
Fraser’s Magazine (Vol. 78, September, 1868) titled ‘On the failure of “natural 
selection” in the case of man’. Essentially a pioneering ‘eugenic’ tract (fifteen years 
before Galton coined the term and made it familiar to the general public), it argued from 
the standpoint of Darwinian theory, that the same mechanism which had allowed the 
human race to achieve its dominance, would be the means of its own deterioration. In 
nature the ‘struggle for existence’ ensured that a process of ‘natural selection’ 
occurred ‘a struggle as there is not room for all where the weaker and less adapted 
succumb, while the stronger and better adapted survive’ (Greg 1868: 353). However, 
‘man’ by virtue of ‘mental not bodily modifications’ and the consequent development 
and active operation of ‘social and sympathetic feeling’ had undermined or 
‘neutralized’ this ‘great wise, righteous and beneficent’ mechanism (Greg 1868: 356); 
allowing the weak and wanting to survive and multiply their kind.

In the rudest tribes the sick are assisted at least with food; less robust health does 
not entail death… The action of natural selection is therefore checked, the weaker, the 
dwarfish, those of less active limbs or less piercing eyesight, do not suffer the extreme 
penalty which falls on animals so defective. (Greg 1868: 354)‘Our thesis is this,’ 
writes Greg:

That the indisputable effect of the state of social progress and culture we have 
reached… is to counteract and suspend the operation of that righteous and salutary 
law of ‘natural selection’ in virtue of which the best specimens of the race—the 
strongest, the finest, the worthiest—are those which survive, surmount, become 
paramount, and take precedence; succeed and triumph in the struggle for existence, 
become the especial, progenitors of future generations, continue the species, and 
propagate an ever improving and perfecting type of humanity. (Greg 1868: 356)

Greg (1868) applies his argument to both races and individuals (Morton 1984: 
123). The Greeks, the Romans and the ‘rude Northern warriors’ triumphed one by
one, being the ‘fittest for the exigencies of the hour’ (Greg 1868: 357); and ‘England’ too,

owes her world-wide dominion and... the wide diffusion of her race over the globe, to a daring and persistent energy with which no other variety of mankind is so largely endowed... At all events it is the STRONGEST and the fittest who most prevail, multiply, and spread. and become in the largest measure the progenitors of future nations. (Greg 1868: 358 [emphasis in original])

It is at the level of the individual, that Greg is at his most strikingly ‘eugenic’. He takes aim at the extremes of the social scale, the aristocracy and the very poor: ‘those emasculated by luxury and those damaged by want’ (Greg 1868: 358). In doing so he places himself in the middle; among those of the middle and upper-middle class (among whom could be counted scientists and other professionals) who considered themselves by virtue of their ability to exercise ‘self-control’ to be in a position to lead society toward a more perfect future.

Kevles (1985: 32) argues that eugenicists like Galton, and particularly his follower Karl Pearson, equated overall ‘fitness’ with physique and mental ability, ‘and assumed that it was centred in the middle, and particularly the professional class’. MacKenzie (1976: 501) agrees, suggesting that eugenics in Britain became an ‘ideology of the professional middle class’ whose adherents were drawn mainly from the spheres of higher education, science and medicine.7

According to Greg (1868: 359) civilization, marked by ‘respect for life and respect for property’ had only ensured a comfortable but unnatural state in which the greatest number were allowed to survive, with dire consequences:

We have kept alive those who, in a more natural and less advanced state, would have died—and who, looking at the physical perfection of the race alone, had better have been left to die... thousands with tainted constitutions, with frames weakened by malady or waste, with brains bearing subtle and hereditary mischief in their recesses, are suffered to transmit their terrible inheritance of evil to other generations, and to spread it through a whole community.

Greg (1868: 360) was in no doubt about how such degradation and ‘dysgenic disorder’ was distributed in society, and where the ameliorative force lay, writing that:

7 MacKenzie (1976) makes a distinction between ‘traditional’ and ‘modern’ occupational activities. Lawyers and churchmen ‘relied on traditional spheres of knowledge’ to legitimize their professional and social role. The new professional, or ‘modern’ occupations were those of school-teaching, engineering and science. The newer professions including medicine sought legitimation in natural science and social research. Eugenics societies were eventually dominated by university teachers, doctors and scientists, the ‘professional middle-class’. Businessmen, hereditary aristocrats, lawyers and churchmen, members of the working-class were not as prominent in these groups; educated women were. Suggesting to MacKenzie that eugenics in Britain, at least, was a middle-class and class, rather than race-based movement.
The physique and the morale of both the extreme classes are imperfect and impaired. The physique of the rich is injured by indulgence and excess—that of the poor by privation and want. The morale of the former has never been duly called forth by the necessity for exertion and self-denial; that of the latter has never been cultivated by training and instruction… Both marry as early as they please and have as many children as they please,—the rich because it is in their power, the poor because they have no motive for abstinence… It is in the middle classes, those who form the energetic, reliable improving element of the population, those who wish to rise and do not choose to sink, those in a word who are the true strength and wealth and dignity of nations,—it is these people who abstain from marriage or postpone it.

The difference between the classes of people and their procreative habits can be made even more stark and shocking:

The careless, squalid, uninspiring Irishman, fed on potatoes, living in a pig-sty, doting on a superstition, multiplies like rabbits or ephemera: the frugal, foreseeing, self-respecting, ambitious Scot, stern in his morality, spiritual in his faith, sagacious and disciplined in his intelligence, passes his best years in struggle and celibacy, marries late, and leaves few behind him. (Greg 1868: 360)

One Glorious Congregation of Saints, Sages and Athletes

Greg (1868: 361) then goes to the heart of the matter. In a perfect society with ‘sagacious and quite stern legislators’ and ‘wise and good’ people of many ranks, the ‘beneficent tendencies of nature would continue to operate uncounteracted’ (Greg 1868: 361). ‘The sick and maimed would be too unselfish to dream of marrying and handing down to their children the curse of diseased or feeble frames’ (Greg 1868: 361). And in what may be viewed as a presage of the eugenic state and Galton’s future (unpublished) utopian novel Kantsaywhere (1910) he muses:

A republic is conceivable in which paupers should be forbidden to propagate; in which all candidates for the proud and solemn privilege of continuing an untainted and perfecting race should be subjected to a pass or a competitive examination, and those only should be suffered to transmit their names and families to future generations who had a pure, vigorous and well-developed constitution to transmit… Every damaged or inferior temperament might be eliminated and every special and superior one be selected and enthroned, till the human race, both in its manhood and its womanhood, became one glorious congregation of saints, sages and athletes. (Greg 1868: 361)

Unfortunately, Greg (1868: 362) lamented, ‘the face of the leading peoples of the existing world is not set in this direction’ and more lamentable still, a deleterious ‘democracy’ which was everywhere advancing, meant in effect the development of a society governed by the ‘least educated classes’ those least aware of the ‘fearfully rigid laws of hereditary transmission’. Yet, he recognised the difficulties of imposing law and of restoring the ‘principle of “natural selection”’ from above:

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8 A portion of Kantsaywhere is reproduced in Pearson’s The Life, Letters and Labours of Francis Galton, Vol. 3A: 411–25. On the island of Kantsaywhere an intellectual élite administers the Eugenic College whose task it is to promote a perfectly harmonious society.
No people in our days would endure the necessary interference and control; and perhaps a result so acquired might not be worth the cost of acquisition… We can only watch and be careful. (Greg 1868: 362)

Progress might not always be in the right direction, he argued. Medical science while a good thing, allowed the unfit to survive, and those whom it saved from dying it preserved ‘to propagate dismal and imperfect lives’. In summing up he argued:

In our complicated modern communities, a race is being run between moral and mental enlightenment and the deterioration of the physical constitution through the defeasance of the law of natural selection;—and on the issues of that race the destinies of humanity depend. (Greg 1868: 362)

‘This belief in deterioration and degeneration served as a major jumping off point for much discussion during the last third of the nineteenth century’ (Farrall 1969: 21).

**Progress is no Inevitable Rule**

During the 1860s in the aftermath of Origin of Species Darwin read and annotated the books and articles of many contemporary writers on social evolution. He was sufficiently impressed by Greg’s article, particularly the passage about the dissolute Irishmen, to mark it ‘Keep’ and quoted it almost verbatim in The Descent of Man (Greene 1981: 101). Greene (1981) who considers that the eugenics of this period was derived from [albeit] a crude reading of Darwinian biology, notes that in order ‘that no reader could miss the implications of the phrase “a want of care, or care wrongly directed”’ (and in what is practically a paraphrase of Greg’s style) Darwin wrote:

[If we] do not prevent the reckless, viscous and otherwise inferior members of society from increasing at a quicker rate than the better class of men, the nation will retrograde, as has often occurred in the history of the world. We must remember that progress is no inevitable rule. (Darwin [1871] 1883: 140)

A tinge of pessimism influenced no doubt by Darwin’s reading of Walter Bagehot’s series of articles which appeared in the Fortnightly Review late in 1867 and published under the title of Physics and Politics, or Thoughts on the Application of the Principles of “Natural Selection” and “Inheritance” to Political Theory in 1871.

Bagehot (1871: 213) had posed the question:

What is progress, and what is decline? Even in the animal world there is no appreciable rule accepted by physiologists which settles what animals are higher or lower than others… Still more, then, in the more complex combinations and politics

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9 As well as receiving copies of books by friends such as Galton, Spencer and Wallace, Darwin purchased or received complimentary copies of books by the historian William Lecky (1838–1903) and from the anthropologist Sir Edward Burnett Tylor whose *Primitive Culture* was published in 1871.
of human beings it is likely to be hard to find an agreed criterion for saying which nation was marching forward and which was falling back.

For Bagehot (1872) human progress had been exceedingly rare. Nations rose and fell. Applying the criterion of the survival of the fittest, he famously considered ‘in what [way] a village of English colonists is superior to a tribe of Australian natives who roam about them’ and decided that the superiority of the English lay in the fact that:

They can beat the Australians at war when they like; they can take from them anything they like, and kill any of them they choose. As a rule, in all outlying and uncontested districts of the world, the native aboriginal lies at the mercy of the intruding European. (Bagehot 1872: 214)

The English were technologically superior, and better able to manipulate the environment for their own gain, leading Bagehot to surmise: ‘The English not only possess better machines for moving nature, but are themselves better machines’ (Bagehot 1872: 215). Yet, he goes on to ask whether this criterion is the right one to use. Deciding that races have progressed so little he offers that only a concerted co-operative effort will do:

Man can only make progress in co-operative groups… unless you can make a strong bond, your society will be killed out by some other society which has such a bond’ and ‘members of such a group should be similar enough to one another to co-operate easily and… The co-operation in all such cases depends on a felt union of heart and spirit. (Bagehot 1872: 219 [emphasis in original])

The theme of intra-racial cooperation and the almost mystical idea of felt union, would in due course become an increasingly important ingredient in the matter of race improvement.10

While Bagehot wished to omit ‘disputed topics of morals and religion’ from the discussion of progress, Greg had no qualms about widening the discussion. He had himself been inspired in writing his article by A. R. Wallace’s ‘admirable paper’ ‘On the origin of human races and the antiquity of man deduced from the theory of natural selection’ published in the Anthropological Review for May 1864 (Greg 1868: 353–54n). Darwin was no less impressed by the idea that natural selection could act on the ‘mental’ [intellectual] and ‘moral faculties’ as much as on bodily structure, and argued as much in Descent of Man. ‘Of the high importance of the intellectual faculties there can be no doubt’ he wrote, ‘for man mainly owes to them his pre-eminent position in the world’ and it is the struggle for survival honing and perfecting intelligence in the individual which is duly passed on from generation to generation. And:

10 Physics and politics appeared in the Fortnightly Review in November 1867, April 1868 and July 1869.
In regard to the moral qualities... some elimination of the worst dispositions is always in progress... Malefactors are executed, or imprisoned for long periods, so that they cannot freely transmit their bad qualities. Melancholic and insane persons are confined, or commit suicide... Profligate women bear few children, and profligate men rarely marry. Both suffer from disease. In the breeding of domestic animals, the elimination of those individuals... which are in any way marked inferior, is by no means an unimportant element toward success. This especially holds true with injurious characters which tend to reappear through reversion, such as blackness in sheep; and with mankind some of the worst dispositions, which occasionally without any assignable cause make their appearance in families... This view seems indeed recognized in the common expression that such men are the black sheep of the family. (Darwin [1871] 1883: 137)

Descent of Man is according to Harris (1968) a work whose most striking feature is:

its almost total advocacy of the struggle for survival as the means of understanding sociocultural evolution... not so much man against nature, as man against man, in the most direct Spencerian paradigm. (Harris 1968: 120)

It is a theme which Darwin reiterates throughout, and there are certain passages which he highlights as evidence of Darwin’s racism (Harris 1968). Darwin ‘underlined’ those passages in Wallace which supported his belief that ‘inferior races’ would yield to ‘superior’ races:

The red Indian in North America, and in Brazil; the Tasmanian, Australian and New Zealander in the southern hemisphere, die out, not from any one special cause, but from the inevitable effects of an unequal mental and physical struggle. (Wallace cited in Greene 1981: 103)

Yet some see in Harris’s assessment one position on a continuum which has Darwin at one end representing a pure value-free science. Darwin the ‘naturalist’ being viewed as ‘a pure scientist confronting nature unhampered by preconceived ideas about nature, society, man and God’ (Greene 1981: 124); and those like Spencer, being viewed as a ‘merely “fashionable publicist”’ and metaphysician, at the other end of the continuum espousing all the characteristic value-laden notions that supposedly mark Victorian thinking. Argument has arisen (see Freeman 1974: 211–37) over the relative contributions of Darwin and Spencer to the development of ‘Social Darwinism’. The problem Greene suggests, arises from Descent of Man (the chief source of Darwin’s views on social evolution) being ambiguous on the point at issue. Those who view Darwin as a ‘social Darwinist’ can find in Descent passages that ‘out-Spencer Spencer’ in their insistence on competitive struggle between individuals, tribes, nations, and races as a prerequisite for social progress, while the same book will reveal ‘equally striking passages in which Darwin seems to recognize the role of education, public opinion, religion, humanitarian sentiment, and social institutions generally in social evolution’ (Greene 1981: 96).
The Language of Survival

Harris (1968: 123) inverts Mc Connaughey’s notion that Darwin applied biological concepts to society, suggesting instead that ‘Darwin’s principles were an application of social-science concepts to biology’. He states in support of this argument that the discussion of socio-cultural progress and evolution was already well established in European social thought particularly through ‘such forerunners as Mondobbo, Turgot, Condorcet… Helvetius,’ men who ‘provided the matrix for the discussion of biological evolution by Geoffroy St.-Hilaire, Erasmus Darwin… and Lamarck. (Harris 1968: 123)

Darwin, he notes, admitted that he came to organize his theory around the concept of the ‘struggle for survival’ originally suggested by Malthus (a social theory of change) although some (Rogers 1972) argue that what he got from Malthus was only ‘the quantitative demonstration of the inevitable pressure of population on subsistence’ that is, the mechanism which allowed the ‘struggle for survival to take place’; and that Darwin himself was confused in his reading of Malthus particularly on its social implications:

Darwin like Malthus and the Social Darwinists after him did not enquire to what degree the struggle for existence… grew directly out of the conditions of nature (a biological question), and to what degree out of those conditions as they have been developed by men (a social and historical question). (Rogers 1972: 275)

That confusion he suggests, was passed on to others who subsequently made use of a Darwin’s (biological) construction of the world for their own ends.

Rogers (1972) seems to argue that Darwin was only indirectly involved in the development of ‘social’ Darwinism, and that his use of metaphor as a literary device resulted in that ambiguity which made it possible for his real (scientific) intention to be misconstrued. What is apparent however, is that in making use, with full acknowledgment, and without much further discussion, of the eugenic speculations of ‘Captain’ Galton and Mr. W. R. Greg, Darwin gave immense support to these ideas, due in large to his acknowledged public status as a great scientist (Morton 1981).

Darwin was as sceptical as Greg about the chances of the ‘poor and the reckless’ controlling their reproduction; he refused when asked, in 1877 to give evidence in the Bradlaugh-Besant birth-control prosecution, because he ‘disagreed with preventive checks on the ground that over-multiplication was useful, since it caused a struggle for
existence in which only the strong and ablest survived’ (cited in Mc Connaughey 1959: 408).

In the 1890s A. R. Wallace reports Darwin is questioning the very survival of the human race:

on the ground that in our modern civilization natural selection had no play, and the fittest did not survive... our population is more largely renewed in each generation from the lower than from the middle and upper classes. (Wallace [1890] 1991: 51)

He is also writing to Galton in support of eugenics. In fact in 1873 Darwin had written that ‘[t]hough I see so much difficulty [in the carrying out the selection process] the object seems a grand one; and you have pointed out the sole feasible, yet I fear utopian, plan of procedure in improving the human race’ (Darwin to Galton 4 January 1873, cited in Pearson 1914–30, 2: 176). That Darwin held on so tenaciously to the idea of the survival of the fittest is perhaps an indication of the power of the idea itself as an explanation of human progress.

As Greta Jones (1981: 12) points out, in a century in which scientific endeavour was directed to establishing the relationship between ‘man’ and the ‘lower’ animals, Darwin:

was trapped within certain pre-existing assumptions of the character of human faculty... and took upon himself the task of explaining a picture of man painted by a specific set of cultural and social ideas.

Those cultural and social ideas, if seen in the light of some of the main concerns of English society in the nineteenth century, are expressed not through the language of science—because there was not as yet a precise language with which to describe ‘man’s place in nature’ or the precise mechanism of genetic transmission—but through the language of political economy.


In 1832 a Massachusetts physician Charles Knowlton produced a booklet The Fruits of Philosophy: Or the Private Companion of Young Married People. He was fined and imprisoned for three months with hard labour in the Massachusetts House of Correction. The small book was published in England in 1834 and continued to be read for forty years without problems. However, in 1876 a Bristol bookseller Henry Cook was prosecuted for selling an ‘obscene’ pamphlet and the book was withdrawn from public sale. Bradlaugh and Besant re-issued the book and informed the police of their action. The subsequent trial, during which the prosecutor claimed ‘this is a dirty, filthy book’, resulted in their acquittal. A cause célèbre, the trial brought the issue of birth control before middle class readers and gave increased purpose to organizations such as the Malthusian League. The idea of an organization to promote family planning first proposed by Bradlaugh in 1861, was advanced by Besant, and the Malthusian League was officially formed in London in July 1877 with Dr George Drysdale as its first president. For the Bradlaugh-Besant case see S. Chandrasekhar 1976. ‘A Dirty, Filthy Book’ (Berkeley: University of California Press, 1981). For the Malthusian League see Rosanna Ledbetter. 1976. A History of the Malthusian League (Columbus: Ohio University Press).
Gillispie (cited in Freeman 1974: 224) put it thus when he suggests that the semantics of political economy stressed:

The world is an arena in which the individual, by exploiting some small fortuitous advantage, can get ahead of where he was and ahead of his fellows through working harder, knowing more, being stronger, saving and building on what he gets, correcting or compensating for any weakness; indeed he must act in order to survive; and the sum of what is true for individuals is true for classes and societies.

Although Darwin made use of information gleaned from the spheres of biology and geology, he organised his argument in terms of:

profit, increments, persistence, diligence, inheritance, saving, progress through competition—in the common coin, the small change of Victorian social and economic discourse. (Gillispie cited in Freeman 1974: 224)12

Social Darwinism can be seen as a functional alliance between the biological and the social explanation of human development.

**Social Darwinism as Eugenics**

Halliday (1971: 389) suggests that Social Darwinism is not amenable to strict definition, but is rather a complex of ideas, or perhaps an ‘enterprise… uncertain and negotiable’. It is a ‘genre or style’ an approach to a set of indeterminate ‘set of theories’ with various practitioners ‘asking questions, attempting answers, and producing solutions, both in competition and in argument with other practitioners (Halliday 1971: 389).

Himmelfarb (1968: 314–32) when she refers to ‘Social Darwinisms’—as ‘varieties of Social Darwinism’ argues, as does Greta Jones (1981) that there were many often contradictory, ideological children claiming descent from Darwin’s theory. A Social Darwinist could be a laissez-fairist, a Socialist, a Marxist, a racist or an anti-racist, a

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12 Richards suggests that this is a popularly supported notion. He cites Ashley Montagu’s (1952: 32) comment in *Darwin, Competition and Cooperation* (New York: Schuman) that ‘Darwinian biology was largely influenced by the social and political thought of the first half of the nineteenth century, and that its own influence took the form of giving scientific support in terms of natural law for what had hitherto been factitiously imposed social law’. See R. J. Richards 1982. ‘Darwin and the biologizing of moral behavior’. In W. R. Woodward and M. G. Ash 1982. *The Problematic Science: Psychology in Nineteenth Century Thought* (New York: Praegar): 43-64.

In making a comparison between Darwin and Freud, Ashley Montagu (1957) asserts that both men were governed in the development of their ideas by the prevailing ideology of their time and place. ‘There is nothing new in the discovery that we tend to see the world according to the kingdom that is within us, and the kingdom that is within us is for the most part likely to be the one in which we have been socialized’ (Montagu 1957: 33). Robert Young (1979) argues for a ‘common context’ for biological and social thought in the nineteenth century, held together by the twin themes of struggle and adaptation.
militarist or a pacifist, an environmentalist or a eugenicist (Himmelfarb 1968). All, in some way, could appeal to Darwin to give legitimacy to their ideological position.

‘Darwinism,’

began as a theory that evolution could be explained by natural selection. It ended as a theory that evolution could be explained just as you would like it to be explained. (C. D. Darlington 1959, cited in Morton 1984: 21)

Social Darwinism has also been more narrowly defined. Halliday (1971) for instance, believes that it is important to understand the definition as it was employed by contemporaries. He argues that Spencerian individualism ‘was understood to refer primarily to the relations between individuals and the State’ (Halliday 1971: 403). While:

Social Darwinism… was commonly understood to refer to racial degeneration and to the specific problem of the differential birthrate. A Social Darwinist was taken to be someone primarily concerned with the degeneration of the genetic purity of a population and hence with the practical consequences of the breeding of the unfit. (Halliday 1971: 403)

[This would by implication make Carlyle a Social Darwinist if as Galton (1908) complained, he never ceased to ‘rave about the degeneracy of the modern English’]. Since nearly all those who emphasised social reform during the 1880s and after, including the Fabian Socialists Sidney and Beatrice Webb, were also advocates of eugenic solutions for social ills, ‘very few contemporaries made the liberalism of Spencer an integral part of Social Darwinism’ (Halliday 1971: 402). The eugenicists according to Halliday were true Darwinians because they assimilated the biological problem of survival with the social problem of reproduction.

**Internal and External Social Darwinism**

Himmelfarb (1968) in her original assessment of the impact of Darwinism draws attention to the way the title of the book published in 1859 exemplifies two struggles. The first part of the title *On the Origin of Species by Means of Natural Selection*, points to *intra-species* competition, where individual members of a species compete against each other for scarce resources, and the most successful in this battle (the fittest) perpetuate their kind, passing on their good points to their offspring, thus contributing to the betterment and evolution of the species; thus vindicating laissez-fairism. The second part of the title *The Preservation of Favoured Races for the Struggle for Life*, seems to suggest *inter-species* competition, where species groups compete against each other in order to establish ‘pre-eminence in the world’; which may be interpreted as vindicating ‘the ideology of nationalism, imperialism, and militarism’ (Himmelfarb 1968: 318).
In making the connection between *Origin* and *Descent* it can be shown that two themes stand out as informing the eugenic enterprise. First is a concern with the moral and intellectual development of the individual. This can be designated as the endogenous focus. Second is a concern with the ‘problem’ of ‘racial degeneration’ which could be designated the exogenous focus. Bernard Semmel (1960) more broadly identified this as constituting ‘internal’ and ‘external’ Social Darwinism.

**The Residuum**

Originally Darwinism as applied to society had emphasised economic competition between individuals as the spur to progress (the Spencerian model). Toward the last decades of the nineteenth century, progress came to be seen as involving an ‘evolutionary struggle between groups of men, between tribes or nations or races, the fittest group predominating in the ceaseless warfare which constituted the evolutionary process’ (Semmel 1960: 30). This view became increasingly dominant from mid-century on, as the middle-class citizens of England perceived the threat of social decay at home in the form of urban degeneration, and a disturbing increase in the numbers of a class of casually-employed, chronically impoverished labourers ‘the dangerous classes’ who became known in the 1890s as the ‘Residuum’ (Stedman Jones 1971; Mazumdar 1980).

The residuum was so-called because it represented a “residual” part of the working class; those who had not benefited from improved standards of living prior to the 1880s, or “responded” to the attempts by legislators and charitable organizations to raise them to a higher material and moral plane [and] some were tempted to explain the hypothesis of urban degeneration, by a reversed natural selection that was throwing up a biologically distinct sub-species congenitally incapable of conforming to accepted social norms. (Searle 1976: 20)

As well as being an indicator of serious social problems, particularly in London’s East End:

The residuum posed a problem of social control. They were not, it is true, radical or revolutionary. But they were politically volatile, and pressed by extreme hardship, they were liable to riot… the middle-classes… felt that the poor were not only dangerous but also physically and mentally degenerate. (MacKenzie 1976: 515)

Their way of life was such that they were prone to disease, and it was easy to believe at the time, in the absence of an understanding of the aetiology of most infectious diseases, that ‘impaired health would be inherited and accumulate through the generations’ and:

programs of social welfare… would reinforce this tendency because they interfered with the natural process of selection. By giving support to those who suffered from some inheritable weakness the welfare programs helped them procreate and thus pass the weakness on to later generations. (Roll-Hansen 1988: 301)
The best-known and most often cited example of this belief in inherited and accumulated defect being the account given by Richard L. Dugdale of the ‘Jukes’ family published in 1877. Dugdale had come across six members of one family all in jail, in rural New York, set out to trace the history of the family in an effort to ‘lay bare the causes crime and pauperism’. He was able to trace over ‘five centuries 709 Jukes… of whom eighteen had kept brothels, 128 had been prostitutes, over 200 had been on relief, and over seventy-six had been convicted criminals’ (Haller 1963: 21). While Dugdale had made his research in the hope of *euthenic* [that is, improving living conditions thereby enhancing individual well-being and social inclusion] his investigation was subsequently used or misused to confirm the hereditary nature of criminality and pauperism, the ‘misinterpretation’ according to Kevles reflecting the ‘mounting hereditary propensity of the day’ (Kevles 1985: 71).

As well as this potential threat of internal instability caused by what would now be known as an ‘underclass’, there existed a perceived threat from abroad in the aftermath of the Franco-Prussian war of 1870, in the form of changing political alliances in Europe, and particularly, in the spectre of an increasingly militaristic Germany.13 But it was the Boer War which became the defining moment for the history of eugenics.

**Degeneration**

Toward the end of the century internal Social Darwinism which had drawn sustenance from the liberal doctrine of laissez-faire, and its concomitant doctrine of non-intervention, was increasingly ‘challenged by the new collectivist spirit… and the rival notion of a protected national economy’ (Semmel 1960: 31). The concern of externalists became ‘the welfare’ of the English, ‘at the expense… of other “inferior” people’ (Semmel 1960: 31).

This period was marked by a sense that the pessimism about modern life which had in an earlier period ‘touched’ only certain individuals like Thomas Carlyle, was now spreading among English intellectuals to a greater extent. This was due in part to the demise of certain ‘leading spokesman of classical liberalism’, men like John Stuart Mill who had died in 1873, and the rise of a new group of ‘figures on the political

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13 The term ‘residuum’ was first used by Helen Dendy in an article called ‘The Industrial Residuum’ published in *The Economic Journal*, 1863: 3: 600–16; ‘In economic terms, this residuum represented one half of a dual labour market… the formal sector, Miss Dendy’s true industrials, earned regular wages in large concerns such as shops and factories. The informal sector, Miss Dendy’s Residuum, earned irregularly, from casual labor, or in one-man enterprises, or in the street—outside the industrial-capitalist system’ (Mazumdar 1980: 206). The Residuum, or urban poor were of great interest to activists like Helen Dendy and also Dr Ettie Sayer who considered them to be ‘so actively anti-social and morally indirgible as to be unfit ever to live among pure, honest, unselfish and public spirited people’ and argued that they should be ‘classified and shipped off to various isles’ (cited in Mazumdar 1980).
landscape [who] now tended to be critics of progress and liberalism such as John Henry Newman and Benjamin Disraeli’ (Herman 1997: 260). ‘Liberalism itself was entering a new, more detached, ‘scientific’ phase’ exemplified by men like the historian Henry Thomas Buckle (1821–62) and Walter Bagehot while ‘Francis Galton, and Charles Darwin… had already indicated scientific liberalism’s future direction: concern about the debilitating effects of civilization on man’s forward evolution and fears of degeneration’ (Herman 1997: 260).

At the same time ‘the rise of socialism had begun to fragment old-fashioned liberalism, drawing off many working-class reformers who had once rallied around the liberal banners of progress and free trade’ while a succession of groups including the Chartists, the Trades Union Congress and Labour Party ‘moved British labor step-by-step away from liberal toward collectivist principles’ (Herman 1997: 260).

By the 1890s, the period often referred to as the fin-de-sècle14 on the Continent, a period when according to Herman (1997) ‘degeneracy was no longer being treated as an anomaly’ and ‘pessimistic fantasies about social death and degeneration began to haunt the European imagination’ —exemplified in Max Nordau’s Degeneration published 1892—the idea that ‘progress’ and social development could take place ‘through the unassisted laws of social evolution’ was replaced by the most interventionist of all Darwinist philosophies, eugenics (Jones 1994: 772).15

Eugenics was a program which sought to ‘guide the actual administration of society and to provide the categories and principles upon which social legislation should be based’ (Jones 1994: 99). Society was construed as many individuals making up a whole (the population or ‘race’ or nation). The health of the whole was determined by the biological ‘fitness’ of its individual members (MacKenzie 1976). The twin pillars of eugenics stressed this construction, one which is encapsulated in the title of Arnold White’s (1848–1925) book Efficiency and Empire (1901) with the link made more

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14 Literally a French term meaning ‘end of century’, but referring particularly to the end of the nineteenth century and the perceived decadence of the art and literature of that period.

15 Degeneration is a critique of ‘modern’ art and a lamentation on the mood of the time in which that art has been created. Writes George Mosse in the Introduction to the 1968 edition of Nordau’s book: ‘The time of Nordau’s fame was (also) the seed time of Impressionism and Expressionism in art, of a new realism in literature, and of a drama that eventually led to the contemporary Theater of the Absurd’. Although he considered fin-de-siècle a ‘silly term’ Nordau writes that ‘the mental constitution which it indicates is actually present in influential circles. The disposition of the times is curiously confused, a compound of feverish restlessness and blunted discouragement, of fearful presage and hang-dog renunciation. The prevalent feeling is that of imminent perdition and extinction. Fin-de-siècle is at one a confession and a complaint. The old Northern faith contained the fearsome doctrine of the Dusk of the Gods. In our days there have arisen in more highly developed minds vague qualms of a Dusk of Nations, in which all suns and all stars are gradually waning, and mankind with all its institutions and creations is perishing in the midst of a dying world’ (Nordau [1892] 1968: 2).
explicit in an article called ‘Eugenics and National Efficiency’ published in the *Eugenics Review* nine years later (Searle 1976). Written during the Boer War (1899–1902) White argued that both ‘racial decay’ and ‘bureaucratic ineptitude’ threatened Britain’s status as a great imperial power:

So universally approved is indiscriminate mercy that no statesman has yet pointed out that sightless compassion and the neglect of elementary considerations of health are enfeebling the British race, and thus menacing the future of the Empire...

As the higher average of life has been accompanied by a lower average of health, so the duty of relieving pain has not only gradually obscured the sense of trusteeship that each generation should hold for its successor, but has gradually impaired the manly and vigorous ideal without which no race can long maintain a world-wide Empire.

Increase in numbers is commonly regarded as a sign of national progress... Recent growth of population of the United Kingdom, however, is actually a symptom of political decline. A vast pollution has been created by the factory and industrial systems... Spectacled school-children, hungry, strumous, and epileptic grow into consumptive bridegrooms and scrofulous brides, and are assured the blessing of the Church...

In Manchester district 11,000 men offered themselves for war service between the outbreak of hostilities in October 1899 and July 1900. Of this number 8000 were found to be physically unfit to carry a rifle and stand the fatigues of discipline. Of the 3000 who were accepted only 1200 attained the moderate standard of muscular power and chest measurement required by the military authorities. In other words, two out of three men willing to bear arms in the Manchester district are virtually invalids. (White [1901] 1973: 98–103)

Coming at the height of the ‘debate about “national efficiency”’ these ‘revelations’ according to William Gleenslade (1994: 183) writing on the literature of the period:

Had both a metaphoric and metonymic force; they were a confirming symptom as well as a constituent episode in the great turn of the century debate about the fitness of the national body.18

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16 After a failed attempt to be a coffee-planter in Ceylon [Sri Lanka], and a short stint as manager for the Edison Electric Light Company in London, Arnold White began his social investigations and speculations in 1884. After an failed attempt to enter politics for the Liberals, he began his career as a journalist publishing his first book *The Problems of a Great City* in 1886.

17 Strumous, like a goitre, or swelling. Equivalent to scrofula (tuberculous lymphadenitis), a general tubercular disorder characterised by swelling and degeneration of the lymph glands, particularly in the neck, and by inflammation of the joints. In earlier times scrofula was known as the ‘King’s Evil’ because it was supposedly cured by the royal touch. It was last practised by English royalty during the reign of Queen Anne (1665–1714) who ‘touched’ Dr Johnson without achieving a therapeutic affect (*Brewer’s Dictionary of Phrase and Fable*, centenary edition, s.v. ‘King’s Evil’).

18 This debate was not limited to England. Robert Nye in examining the situation in France in the late nineteenth century emphasises the link between the notion of degeneration and the rise of the hygiene movement; particularly as it was expressed in the development of therapeutic activities that encouraged physical culture and sports. Degeneration was a concern of doctors, especially psychiatrists, public hygienists and criminologists, who espoused ‘a strictly medical notion of degeneracy to demonstrate a relationship between degenerate individuals and the various social pathologies from which the nation suffered’. Unlike their English counterparts, French medicos eschewed Darwinian natural selection, preferring instead an approach adapted from Neo-Lamarckian biology, called ‘organic economy’. ‘In this process each organism spontaneously arranged its internal equilibrium in such a way as to achieve a state of adaptive equilibrium with the...
Eugenic Solutions for Social Ills

What was the solution? The alarm made manifest in books like *Efficiency and Empire*, and the sense of national crises created by the Boer War, seemed to be the ideal time to launch a new program for social action. At the same time (1899) the re-discovery of Mendel’s famous research on the hybridity of plants, and the publication of Auguste Weismann’s (1834–1914) theory of the ‘continuity of the germ plasm’, the idea that germ or sex cells were the vehicle for passing on hereditary characters from one generation to the next (what is now referred to as DNA) created a surge of interest in inheritability.

Mendel’s research (originally published in 1865 in two papers, as ‘Versuche über Pflanzenhybriden’ [Experiments with plant hybrids]) ‘supplied one of the keys for unlocking the genetic structure of human life’ (Searle 1976: 7–8). The discovery of the dominant and recessive units now referred to as the ‘gene’ (Bowler [1983] 1989a). Weissman suggested that germ (sex) cells were fundamentally independent of all other body cells or ‘soma’. The sex cells could not be effected by changes to body cells through use or disease or any environmental stimuli, thus overturning the Lamarckian mechanism that acquired characters could be inherited. Importantly the idea of the fixity of the germ plasm gave encouragement to those who wished to believe, like the eugenicists, that human characteristics good and bad were established before birth (nature) and in the case of the latter that there was little that could be done by way of environmental input (nurture) to change sow’s ears into silk purses!

The discoveries of the new science of genetics together with Galton’s and Karl Pearson’s statistical and biometric investigations gave an enormous psychological boost to the belief that society might be able to intervene in some way to ‘eradicate scientifically evils and suffering that had baffled philanthropists and reformers for generations’ (Searle 1976: 8).

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environment’. But what happened’ they asked ‘if the environment altered in such a way to produce responses from the organism that were successful in the short run task of adaptation, but dysfunctional to the organism in the long run producing an adaptation the organism experienced as a pathology? By the 1880s a Neo-Lamarckian theory of heredity explained the inheritance of these human “adaptive” pathologies in the following way: the first generation concealed the adaptation as an “aptitude” or “tendency,” but later generations experienced it as a debilitating physical condition of a morbid type’ Familial alcoholism could be explained in this way. Since the initial maladaptation had been in response to an unhealthy environment, the environment could be changed to ‘regenerate the afflicted and shape the generations of the future’. See ‘Degeneration, hygiene and sports in fin-de-siecle France’. *Proceedings of the Annual Meeting of the Western Society for French History, Vol. 8* (1980): 404–12. Also Robert Nye 1984. *Crime Madness and Politics in France: The Medical Concept of National Decline* (Princeton: Princeton University Press).
Positive Eugenics

In his early work Galton had been little concerned with controlling the reproduction of the lower classes, ‘confining an advocacy of social reforms designed to bring about a more eugenic distribution if births almost exclusively to the domain of positive (“constructive”) eugenics’ that is, to social programs designed to encourage as he wrote in *Hereditary Genius* the ‘multiplication of the races best fitted to invent and conform to a high and generous civilization’ (Galton 1869: 357; Bajema 1976). His efforts to encourage an increase in the birthrate of a section of the population (the middle class) ran counter to the efforts of those [Like Bradlaugh and Besant] who were trying to ‘achieve a higher quality of human existence by bringing about a decrease in the birth-rate of the total population by voluntary means’ (a point of view referred to as ‘voluntarist’ eugenics). But Galton’s efforts should be seen within the context of the ‘class’ with which he identified. Further on the issue on Galton’s use of ‘race’.

His idea that the human race might be perfected by limiting marriage to the physically and mentally fit was made at a time when the word “race” did not carry controversial overtones, but signified rather “mankind”; since then eugenics has too often been purloined away from the science of “race improvement” toward a connotation of racism. (Keynes 1993: 25)

Galton like Darwin (seems to have) eschewed a call for birth-control, and he never publicly or privately supported a ‘comprehensive program of social action to bring about a society whose population would be… kept… strictly within the bounds of number and suitability of race’ (Mackenzie 1976: 512; Bajema 1976: 11)

However, Galton had developed the anthropometric survey and a statistical science which, enabled the construction of a picture of society from which inferences could be drawn, and the results of which could be harnessed by others, like his disciple Karl Pearson, for the purposes of social action.

Galton’s Disciple

Karl Pearson is perhaps the man who most closely conforms to the title of Social-Darwinist. He believed that Darwinism had to be rescued from the ‘*laissez-faire* individualists and turned into a legitimation of collectivism and a strong state’ (MacKenzie 1981: 83). A fact which led Bernard Semmel (1960) to classify Pearson as a ‘National Socialist’; an interesting point in light of the fact that like Carlyle, Pearson received some of his formative intellectual education in Germany where he ‘absorbed much of that country’s scientific and social philosophy’ as well as discovering its history and folklore, toward which his first efforts at serious research
were directed (Pearson 1936; Torjman 1991). His post-Cambridge interlude of study at the Universities of Heidelberg and Berlin during 1879 and 1880 brought him into contact with the radical student movement and the works of Marx. At the same time he was able to attend lectures by the physiologist Emil Du Bois-Reymond (1818–96) on Darwinism at a time when the whole issue of Darwinism was being hotly debated in German academic circles.

Like Bagehot, Pearson supported a cooperative state in which intra-group struggle was minimised or better still, ‘sacrificed for inter-group struggle, in which the focus became a well-organized and united state; which could compete successfully with other states’ (Mackenzie 1981: 84 [emphasis added]). He was one of the first to combine hereditarianism with socialism, arguing in *Natural Inheritance* (1889) that human abilities were under genetic control (Crook 1994). Although he called himself a ‘Socialist’ he disliked the Marxist notion of class struggle and was opposed to the idea of revolution as a means to effect social change. In *The Ethic of Freethought* (1888) he expressed himself openly on this matter revealing his particular and distinctive blend of hereditarianism, socialism, history and philosophy:

> Human society cannot be changed in a year, scarcely in a hundred years; its organism is as complex as that of the most differentiated type of physical life; you can ruin that organism as you can destroy life, but remould it you cannot without the patient labours of generations, even of centuries. That labour itself must be directed by knowledge, knowledge of the laws which have dictated the rise and decay of human societies, and of those physical influences which manifest themselves in humanity as temperament, impulse, and passion. No single man, no single group of men, no generation of men can remodel human society; their influence when measured in the future will be found wondrously insignificant. They may, if they are strong men of the market place produce a German Reformation or a French Revolution; but when the historian… comes to investigate that phase of society before and after the movement, what does he find? A great deal of human creation? The veriest little; new forms here and there perhaps, but under them the old yoke; the same round of human selfishness, of human misery, of human ignorance—touched here and there, as of old, by the same human beauty, the same human greatness.

> It is because the man of our study recognizes how little is the all which even extended insight will enable him to do for social change that he condemns the man of the market-place, who not only thinks he understands the terms of the social problem, but has even found a solution. The man of the study is convinced that to really change human society requires long generations of educative labour. Human progress, like nature never leaps; this is the most certain of all laws deduced from the study of human development. (Pearson 1888: 121–22 [emphasis in original])

Rather he believed that social change was managed by enabling and encouraging the greater fitness of the group and, contra Spencer, by severely limiting competition within the group. ‘Collectivist social reform was needed… to secure national

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19 In 1882 Pearson gave ten lectures on ‘German social life and thought’ for the South Place Ethical Society, and thereafter a series of twelve lectures for the [Cambridge] University Extension Teaching programme. For a more detailed account for this aspect of his early career see E. S. Pearson 1938. ‘Karl Pearson: An appreciation of some aspects of his life and work’. *Biometrika* 29 (2): 198.
efficiency in the inter-imperialist struggle; the profits of imperialism could, in turn, finance social reform’ (Mackenzie 1981: 84). Where Pearson was most striking was in the way in which he manifested the tension between the various strands of Social Darwinist thinking. As Paul Crook (1994) points out, Pearson’s ideas constituted an ‘idiosyncratic mix of current ideologies’. He was a:

Free-Thinker and sexual radical, socialist and a pioneer of eugenics. At the same time he was out of step with a great deal on eugenic and socialist thought, not least because of his bellicose discourse on war and imperial expansion. (Crook 1994: 87)

Pearson’s *National Life From the Standpoint of Science* (1901) largely provoked by the Boer War was an exposition of this view. *National Life* was issued as a pamphlet following a public lecture given in Newcastle (England) on 19 November 1900 (Pearson 1936: 237). It constituted a tirade ‘against free-scrambling free-market profiteering at the cost of class suffering and division’, in which Pearson ‘urged eugenic and socialist efficiency at home—ensuring the rule of better brains and stock’ so that the nation could be elevated to a high state of efficiency all the better prepared to fight a war against inferior races, and gain a competitive edge in the race with equal races to secure valuable resources and food supply (Crook 1994: 89). Pearson wrote:

> History shows me one way... in which a high state of civilization has been produced, namely the struggle of race against race, and the survival of the physically and mentally fittest. (Pearson [1901] 1985: 21)

To this end state interference in the matter of child-bearing was justified, as was the placing of this task in the hands of the group beast able to make decisions of this kind: the scientific community:

> To produce a nation healthy in mind and body must become a fixed idea—one of almost religious intensity, as Francis Galton has expressed it—in the minds of the intellectual oligarchy, which after all sways the masses and their political leaders. (Pearson [1909] 1985: 25)

E[gon] S[harpe] Pearson in an appreciation of his father written between 1936 and 1938 [later combined in one volume] stressed that *National Life* presented a considerable change from the outlook presented in the *The Ethic of Freethought* which had appeared in 1888. In *Ethic* Pearson (1888: 322–23) had presented a social philosophy which argued for the suppression of the socially irresponsible and particularly the culture of the masses [‘that large group of persons who find pleasure in ripping up cushions of public carriages’] in favour of what he termed ‘personified Society’, a society in which government was ‘aristocratized’ and only ‘fit men’ were placed ‘in places of trust’:

> *National Life* reveals that the writer has matured, has passed from forming ideas to working them out in practice and presents his audience the real rather than the ideal. He is no longer concerned with the faith of the scientist or sociologist, but with
the facts, and sometimes unpleasant facts, of experience which it is his duty as a
scientist to set before the nation as a warning (Pearson 1936: 237 [emphasis added]).

There is a strain of pessimism, now, in his discussion of national and social
problems, which was undoubtedly associated with emotions roused by the South
African War. That realisation of failure, of national shortcomings and
muddleheadedness which was brought home to the country in 1900 was certainly
shared fully by Pearson. There was roused in him a national self-consciousness, a
feeling of patriotism, with an outlook on empire and the use of colonies which we
should perhaps not expect from a study of his earlier writings. There was less of the
joyous faith in man’s destiny which runs through The Ethic of Freethought. The
lesson which he now read from history, reinforced by his scientific appreciation of
the forces of inheritance and natural selection, was that in one way only had a state of
high civilisation been produced, namely by the struggle of race with race, and the
survival of that which was physically and mentally the fitter. Such a struggle he
regarded as inevitable, and it became therefore vitally important to Britain as a nation
to take stock of her physical and mental equipment, and to recognise the need for
conscious action directed towards improving the parentage of the citizens of the
future. If this course were not followed, then the prospects seemed grim. (Pearson
1936: 237–38)

It was to this end that Pearson dedicated his vast statistical work which was
essentially the statistics of large numbers or ‘mass phenomena [in contrast to the
pseudo-science employed by many Social Darwinists]’ (Crook 1994: 87). This was of
course a statistical approach not unlike that of Quételet in the earlier part of the
nineteenth century. Pearson’s statistical and biometric work both as the editor of
Biometrika, (first published in 1901) and as First Galton Professor of Eugenics at the
Galton Institute at the University of London, a post he held from 1912 till his
retirement in 1933, was accomplished with the intention to focus the application of
statistics on a wide range of issues concerning human health and character. It was in
particular, that being convinced, like Galton, of the predominance of “nature over
nurture”… he sought to provide evidence of the hereditary nature of a wide range of
diseases and afflictions, such as alcoholism, tuberculosis, and a variety of mental
defects’ (Torjman 1991: 14).

Civic Worth = Genetic Worth

On October 1901, Galton delivered the Huxley Lecture at the Anthropological Institute,
titled ‘The possible improvement of the human breed under the existing conditions of
law and sentiment.’ It was his aim in this lecture to:

induce anthropologists to regard human improvement as a subject that should be
kept openly and squarely in view, not only on account of its transcendent
importance, but also because it affords excellent but neglected fields for
investigation. (Galton 1901: 659)

Drawing on extensive demographic observations for the city of London gathered by
Charles Booth, he was able to demonstrate that the relative relationship between classes
could be shown to follow the ‘Normal Law of Frequency’ or bell-curve (Fig.
10). From these data he constructed a table (Table 2) of ‘civic worth’ which incidentally also served as a map of ‘genetic worth’. As the figure and table show, ‘t,u,v, and below are undesirables’. About this group Booth had written:

Their life is the life of savages, with vissitudes of extreme hardship and occasional excess. From them come the battered figures who slouch through the streets and play the beggar or the bully. They render no useful service, they create no wealth; more often they destroy it. They degrade whatever they touch, and as individuals are perhaps incapable of improvement... They are barbarians... It is much to be desired and hoped that this class may become less hereditary in its character; there appears to be no doubt that it is now hereditary to a very considerable extent. (Booth cited in Galton 1901: 663)

It is toward this group that a program of ‘negative eugenics’ would be aimed: ‘it would be an economy’ Galton wrote, ‘if all habitual criminals were resolutely segregated under merciful surveillance and peremptorily denied opportunity for producing offspring’ (Galton 1901: 663).

**Negative Eugenics**

However, negative eugenics, or ‘lowering the birthrate of the “less fit” relative to the “more fit” members of the population’ cast its net much more widely than the ‘criminal class’ and its methods were more extreme than simply encouraging the ‘better sort’ of underclass to emigrate as Galton had suggested in *Hereditary Genius* (Bajema 1976: 12; Galton 1869).

Dr Robert Reid Rentoul, a Liverpool physician compiled a ‘fair estimate of the number of mental degenerates in the United Kingdom’ from the census of 1901 (Rentoul [1906] 1984: 6 [Table 3]). The list was all-encompassing, and it was Rentoul who in 1903 published his *Proposed Sterilisation of Certain Mental and Physical Degenerates*; and ‘continued to re-iterate his views over the next decade with a violence of language and a disregard of all the difficulties, which cannot have done his cause any good’ (Searle 1976: 93). Searle (1976: 92) also cites the case of Dr William Chapple, a New Zealand surgeon who eventually became a Liberal politician in Britain.

William Chapple in a slim volume titled *The Fertility of the Unfit* (1904) written mainly for an Australasian medical audience, upheld the:

> conviction present in the minds of present day sociologists, that the fertility of the unfit was menacing the stability of the whole social superstructure... forcing many to advocate more drastic measures for the salvation of the race. (Chapple 1904: 101)

He provides a review of those who are actively engaged in the salvation of the race. One of those he cites is the American Dr. William McKim who ‘in an exhaustive work
Table 2.

Comparison of Mr Booth's Classification of All London with the Normal Classes.

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>97</td>
<td>H. All &amp; above G</td>
<td>100</td>
<td>100</td>
<td>89</td>
<td>T and above</td>
<td></td>
</tr>
<tr>
<td>200</td>
<td>(C. Lower middle</td>
<td>159</td>
<td>159</td>
<td>161</td>
<td>S</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(F. High-class labour above 50s. per week)</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>328</td>
<td>E. Regular standard earnings from 22s. to 30s. per week</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>r</td>
<td></td>
</tr>
<tr>
<td>127</td>
<td>(D. Intermittent earnings, improvident, poor)</td>
<td>159</td>
<td>159</td>
<td>151</td>
<td>r</td>
<td></td>
</tr>
<tr>
<td>94</td>
<td>(B. Circum; very poor</td>
<td>100</td>
<td>100</td>
<td>89</td>
<td>r and below</td>
<td></td>
</tr>
</tbody>
</table>

The two columns headed "No." give respectively the numbers per thousand in Mr. Booth's and in the normal classes.

Source: Data and table reproduced from Francis Galton, 1901. The possible improvement of the human breed under existing conditions of law and sentiment. Nature 64: 660.

Fig. 10. Donald MacKenzie: Galton's view of British social structure. Reproduced from Eugenics in Britain. Social Studies of Science 6 (1976): 514. Sage Publications, Ltd.
Table 3.
Fair Estimate of the Number of Mental Degenerates in the United Kingdom.

<table>
<thead>
<tr>
<th>Category</th>
<th>Estimate</th>
</tr>
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<tbody>
<tr>
<td>Insane</td>
<td>170,898</td>
</tr>
<tr>
<td>Criminals of various kinds</td>
<td>22,244</td>
</tr>
<tr>
<td>Deaf and dumb from birth</td>
<td>9,822</td>
</tr>
<tr>
<td>Blind from childhood</td>
<td>5,397</td>
</tr>
<tr>
<td>Inebriates in homes</td>
<td>659</td>
</tr>
<tr>
<td>Inmates of reformatory and industrial homes</td>
<td>34,015</td>
</tr>
<tr>
<td>Epileptics, estimated at 1 per 1000 of the population</td>
<td>62,187</td>
</tr>
<tr>
<td>Feeble-minded, estimated at 1 per cent. of the population between the ages of 5 and 14 years</td>
<td>88,346</td>
</tr>
<tr>
<td>Vagrants relieved by Poor Law</td>
<td>11,847</td>
</tr>
<tr>
<td>Tramps and footpads</td>
<td>28,448</td>
</tr>
<tr>
<td>Public prostitutes, estimated at</td>
<td>60,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>483,507</td>
</tr>
</tbody>
</table>

Population of United Kingdom on Census Day: 41,452,721
Number of mental degenerates to population: 1 in 85
Probable number: 1 in 50

The above table is very incomplete, and for the following reasons:

The number of insane includes only publicly recorded cases. Many do not know how to fill in a census paper; many mothers will not enter their children as idiots; the “borderland” cases are not included, nor many of the “backward or defective”; nor does it include alcoholics, drug addicts, nor the highly neurotic who frequently beg degenerates, nor the thousands mentally diseased, in hospitals for diseases of the brain or in the “infir” wards of our workhouses, nor the large number of undetected criminals. The public should understand that there is a marked difference between being insane from the medical standpoint and that from the legal view.

on “Heredity and Human Progress” advocates for ‘the remedy which alone… can hold back the advancing tide of disintegration’ (Chapple 1904: 102). McKim is directly quoted by Chapple:

The roll then, of those whom our plan would eliminate, consists of the following classes of individuals coming under the absolute control of the State:—idiots, imbeciles, epileptics, habitual drunkards, insane criminals… murderers, nocturnal house-breakers, and such… as might through their constitutional organization appear very dangerous… who might be adjudged incorrigible. Each individual of these classes would undergo thorough physical examination, and only by due process of law would his life be taken from him. The painless extinction of these lives would present no practical difficulty—in carbonic acid gas we have an agent which would instantly fulfil the need. (McKim cited in Chapple 1904: 102)

Chapple (1904: 102) comments that he quotes this ‘not with approval, but merely to show how grave and serious the social outlook is’. *Fertility of the Unfit* was largely an expansion of a paper with the same title presented by Chapple before the Intercolonial Medical Congress at Brisbane in 1899. The solutions which Chapple presented for his physician audience to consider (in light of what ‘anaesthetics had made possible’) are all distinctly medical/surgical in nature, with various forms of surgical intervention such as oöpherectomy [removal of the ovaries] and vasectomy being described in some detail (Chapple 1899: 481).

However, English eugenicists were fairly conservative, and were extremely reluctant to advance and pursue any practice that might alienate public opinion or that would be practically difficult to implement (Searle 1976). They settled instead for those practices which were both tenable and accessible. Identification and segregation were such practices. Both were based on developing and existing knowledge. The development of mathematical statistics by Galton and Pearson and their associates were made ‘in the name of eugenics’; advances made in psychological testing and psychometric theory were made by a new breed of psychologist with strong eugenic sympathies. Charles Spearman and Cyril Burt in Britain, and in America Henry Goddard, G. Stanley Hall, and William McDougall, who all ‘were unique… in their tendentious belief that their own profession was absolutely essential to improving society’ (Morawski 1982: 1090; Haller 1963: 122–32; Pickens 1968; Kevles 1985).

In the matter of segregation, while a tradition of separation of the underclass and the ‘feeble-minded,’ existed in the form of the workhouse and the asylum, it was not until 1908 that a specific attempt was made by the ‘Royal Commission on the Care and Control of the Feeble-Minded’ to legislate for the ‘eugenic segregation of all mentally defective persons into institutions where they would be humanely cared for but could

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not bear children’ (Larson 1991: 48). Their findings culminated in the Mental
Deficiency Bill of 1913, which was ‘one of the rare occasions on which eugenics [and
eugenic theories] actually occupied the national [British] political stage’ (Larson 1991:
47).

Yet even though eugenic theories clearly influenced this legislation, its enactment did
not reflect a willingness on the part of the British people or parliament to conform
public policy to those theories. Quite the contrary, parliamentary debate over the bill
revealed both profound distrust of both eugenics and eugenicists. Opponents of the
measure repeatedly appealed to that distrust, and ultimately forced proponents to
delete explicitly eugenic language from the bill and to deny unequivocally that any
eugenic taint remained. Final passage came only after the supportive arguments were
cast in terms of “common sense” [and The Nation confirmed that eugenics had
been excised from the bill]. (Larson 1991: 59)

The Eugenic Enterprise

Nevertheless, the eugenic ‘enterprise’ had many adherents during the years before the
Great War. Educated men and women joined branches of the Eugenics Education
Society (EES) across Britain. The aim of the EES was to promote the ‘gospel of
eugenics’, and its activities ‘were primarily propagandist and political’ (Farrall 1970:
209). Women in particular were drawn to the society as it afforded them an active
means of social involvement at a time when they were denied the vote (Brown 1988).
Many off those who in 1904 had heard Francis Galton give his lecture ‘Eugenics: Its
definition, scope, and aims’ at ‘a carefully stage-managed meeting of the Sociological
Society… with Karl Pearson in the chair’ were drawn eventually to the EES.

21 The term ‘feebleminded’ is described by Kevles (1985: 46) as a ‘catchcall that was used
indiscriminately for what was actually a wide range of mental deficiencies’; although Searle (1976:
105) in his discussion of the situation as it was before 1911 states that ‘it was widely accepted that
a high proportion of “habitual criminals”… were mentally retarded’. Feeble-mindedness was
considered to be hereditary and the feebleminded as a class were considered to have a fertility rate
above the average (Kevles 1985). Rentoul contended that “mentally defective” and “backward
children” not idiots nor imbeciles, but who cannot be taught in the usual methods in force at
elementary schools’ constituted the most ‘dangerous class when we consider the “coming race”’. ‘They
cannot be “cured”’ he wrote, ‘because their defect is congenital.’ It was misleading to speak of
“schools” for them, because only a few can be even partially educated, while the many lapse.’ They
could behave with ‘outward decorum’ but had an inherent tendency to criminality as adults. ‘These
“backward children” are, from the procreation standpoint, the most dangerous to the nation’
(Rentoul 1906: 28–9 [emphasis in original]).

22 Larson (1991: 55–7) notes that prior to the commencement of the parliamentary debate on mental
deficiency legislation discussion of the issues tended to be conducted in ‘elite journals’ aimed at the
upper middle class, who were already favourably disposed toward eugenics. The Monthly Review,
Nineteenth Century, National Review, were among these. Presenting opposing or more critical
points of view was the Athenaeum, and the ‘influential leftist daily The Manchester Guardian,
which condemned the “half-baked scientific theories” underlying the Mental Deficiency Bill’. The
most severe criticism came from The Nation ‘the principle organ of new liberalism… which
damned the charlatan’s talk of imprisoning the unfit… [as] a partially conscious attempt to cripple
social reform… The Nation repeatedly condemned eugenics and decried the “experts” who, “in the
name of science and efficiency”, would enslave an ill-defined and potentially broad class of society’.
The society which was founded in 1907 attracted men and women of energy and achievement. Charles Darwin’s sons Leonard and Francis were members. Psychiatrists and other medical practitioners were present in numbers, including Sir James Crichton-Browne and Dr A. F. Tredgold, the man who in 1909 contributed an article to the *Eugenics Review* titled ‘The feeble-minded—a social danger’. There was the extremely involved barrister Montegue Crackanthorpe who was President from the Society from 1909 to 1911; and a prolific journalist (and eventually) broadcaster Caleb Saleeby who wrote *Parenthood and Race Culture* in 1909, and who coined the terms ‘positive’ and ‘negative’ eugenics. The Society attracted social radicals like Sidney Webb, and Beatrice Webb (née Potter) who had been the executor of Herbert Spencer’s estate, and who together founded the London School of Economics in 1895. Literary figures like George Bernard Shaw and H. G. Wells became members, as did the Reverend William Inge, Dean of St. Paul’s Cathedral. Socially prominent people were active, people like Lady Ottoline Morrel who kept the famous literary salon at Carsington where the visitors included Aldous Huxley author of *Brave New World* (1932). Sexual radicals supported the eugenic creed. Like Henry Havlock Ellis (1859–1939), who wrote the seven-volume *Studies in the Psychology of Sex* (1897–1928) which though it was eventually superceded by Freud’s work served to bring the discussion of sexuality into the modern age. Marie Stopes (1880–1958) was a member. Scientist (palaeontologist), suffragette and birth-control advocate (opening the first birth-control clinic in London in 1921) she became famous for her book *Married Love* (1918). A future prime minister Neville Chamberlain (1869–1940), best remembered for his ‘appeasement’ of Germany, was a member in the provincial city of Birmingham. The economist John Maynard Keynes (1883–1946) was Treasurer of the Cambridge University branch (Kevles 1985; Farrall 1970; Searle 1976; Haller 1963).

The movement was to a certain extent fashionable, ‘modern’, ‘progressive’. The movement was seen at the time to encourage a ‘higher racial standard’ as well as promising and fostering a serious science of heredity (*Encyclopaedia Britannica*, 11th edn., s.v. ‘Eugenics’). It spread beyond England particularly to America where

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The EES grew out of another organization called the Moral Instruction League which had been founded in 1897. Although Farrall wrote in 1976 that he had ‘been unable to find out anything about this organization’ save for the name its full-time lecturer F. J. Gould author of *Moral Instruction* (London, 1910), Pauline Mazumdar (1980) adds to this information. She refers to the Moral Education League formed in 1898, citing its literature in which the name of F. J. Gould figures. She writes that ‘the Moral Education League stood for individual responsibility. Many of its members were teachers; their method was to send a member to teach a demonstration lesson on character and ethical choices in everyday life, and then to follow up with books and pamphlets so that the schools ordinary teachers could use the same plan’. It also seems to be the case that many who came to support the goals of the EES or who became members were active in other, societies like the National Association for the Care and Protection of the Feeble-Minded, as well as the Fabian Society; and older societies, such as the Charity Organization Society which had been established in 1869.
likeminded persons, including President Theodore Roosevelt expressed eugenic sympathies. Roosevelt wrote to Charles Davenport, the biologist director of the Station for Experimental Evolution and the Eugenics Records Office at Cold Spring Harbour, Long Island:

Some day we will realize that the prime duty, the inescapable duty, of the good citizen of the right type is to leave his or her blood behind him in the world; and that we have no business to permit the perpetuation of the wrong type. (cited in Pickens 1968: 121)

Numerous branches of the EES were established in provincial cities throughout England, including branches at Liverpool, Manchester, Birmingham and Glasgow (Farrall 1970). And in America there were Eugenics societies, and those that went by other names like the Galton Society of New York and the Race Betterment Foundation of Battle Creek, Michigan. In Germany The International Gesellschaft für Rassen-Hygiene was established in Munich in 1910. There were other societies in Scandinavia, Denmark, France, Italy Austria and Japan and in the Southern Hemisphere in South America. Branches were established in New Zealand, in Dunedin (1910), in Christchurch and in Wellington (1911–12). An Australian branch of the Eugenics Society was formed in Sydney in 1912–13, and there were requests being made for information from interested people in Melbourne to the Society in London at the outbreak of the Great War in 1914.24

A ‘highly publicized’ International Congress of Eugenics was held in London in July 1912, attended by over eight hundred scientists and social scientists from around the world. Their effort to organize another conference was postponed by the war, but they rallied to hold a Second International Conference of Eugenics in New York in 1921 and again in 1932 (Farrall 1970: 209–10).

While most branches in England found it difficult to re-establish themselves after the war, and their membership steadily declined in some form the complex issues which informed eugenics remained to be discussed (Farrall 1970). In each country various currents of thought, mostly with ‘deep roots’ in Darwinian evolution had prepared the way for the reception of eugenics doctrine. In each country the movement took on somewhat different characteristics and followed a different course.

Beyond Darwinism

Still there existed a popular frame of reference, which as Mary Cowling (1983) observed existed among ordinary Victorians, who exercised their considerable skills as amateur anthropologists in making judgements about the status and character of their fellow citizens. This worked because it was psychologically a shared phenomena. Everybody agreed. Everybody agreed that gentility and criminality could be seen as external manifestations of internal states of being. There were accepted differences between classes and races because they were visible differences. The task of science, aided by technology, was to legitimize this natural human tendency to differentiate.

The ever inventive Francis Galton, created a process during the 1870s called Composite Photography in order to ascertain ‘whether physiognomy was an index to mind: whether facial characteristics are correlated with mental traits’ which enabled him to create ‘generic’ portraits of particular groups: a ‘Jewish type’ a ‘tubercular type’ a ‘criminal type’ (Galton 1878; Galton 1908: 259–63; Pearson 1914–30, 2: 285–333). The successful reception of these portraits is said to have ‘convinced Galton that the future of this work lay largely in ethnological and genetic work’ (Pearson 1914–30, 2: 285). Greta Jones (1980: viii) pertinently writes that ‘it is now forgotten how close much of Galton’s work was, not to modern theories of heredity but to Gall, Lavater and the tradition of reading character by signs’. Galton’s modern physiognomy was little more than Lavater’s ancient art reinvented and yet the scientific analysis of ‘difference’ in this way could still be described by Galton—as it was—as a ‘scientific’ experiment because it was based in the first place on a hypothesis to be tested (Galton 1908). Nevertheless Greta Jones’ observation is relevant to the discussion of how diverse are the influences effecting the metamorphosis of particular ideas in science and society.

Those observations that lie outside those contributed by Darwin and his circle, are as vital for an understanding of the development of the study of the ‘science of man’ as is the study of that science in the wake of Darwin. There were many connections—still active in a subterranean fashion—contributing toward this discourse, connections the influence of which are not so generally obvious now.

Such an association, indeed a symbiotic one, existed between the task of extending European economic interests abroad, and the rise of an ‘undifferentiated’ interdisciplinary anthropology during the late eighteenth and early nineteenth centuries as represented by the efforts of the Société des observateurs l’homme. The world-wide spread of European culture during the eighteenth century was paved with good scientific intentions as diverse races came under intense objective scrutiny.
Curiosity about the diversity of the human family and human communities, was fed in the nineteenth century by a flourishing dialogue on the nature of human life in all its manifestations. As the popular and periodical press made accessible the speculations and theorizing of learned individuals, the old ideas, the old observations, the old knowledge as well as the old myths, legends and stereotypes, remained as substrate to the new knowledge. This dialogue had by now drawn to itself most of the components which go to form a ‘complex’. A complex by its very nature has a visible and invisible aspect. The public scientific dialogue on the nature of human life and the development of human societies could be subverted by those old myths, legends and stereotypes. Or stirred by an alternative set of beliefs. The professed agnosticism of Francis Galton was counteracted in his own home by the steadfast and enduring religious faith of his wife Louisa. This tension was mirrored in society as a whole, and mirrored in its intellectual life. Mirrored in the debate and the controversy which erupted in the wake of *Origin of Species*. Theologians battled scientists for the philosophical and intellectual high-ground. Cartoonists had a field-day as they shared with the people —a people already adept at making such observations —the judgment that there seemed a remarkable similarity in the physiognomy of Mr Darwin compared with that of a chimpanzee. It was perhaps not really all that surprising that the chimpanzee might turn out to be a remarkably good thinker. This was not a new idea. a certain Frenchman called Rousseau, and an Scotsman popularly called Mondobbo had already suggested as much nearly one hundred years before. It was already part of the complex. As was the belief that there existed differences between Europeans and Hottentots. Intellectual difference was extrapolated from physical difference. This was ‘common-sense’. It was obvious that men and women were different; that black and white were different and that the ‘viscously disposed’ were easy to detect in a crowd by the irregular conformation of their craniums.

This debate by its very nature concerned the complex associations connected with the idea of human evolution and the nature of biological and sociological organization. It concerned the nature of social progress and the feasibility of ‘the possible improvement of the human breed’. It also concerned the reasons (recalling Charles Darwin’s words at the beginning of Chapter 3) ‘why one particular tribe and not another has been successful and risen in the scale of civilization’ and why some (savages) ‘were still in the same condition as when discovered several centuries ago’.

There were those who had in the twelfth century believed in the existence of the ‘Antipode’ members of a fabled race whose feet pointed backward, and who lived on the other side of the globe. So far away that St Augustine refused to believe that they existed.
How it was argued could the descendants of Noah’s sons have reached that part of
the world and how could Christ bring salvation to all mankind, if a portion of it was
cut off from the rest. (Wittkower 1977: 60)

Yet generations of sailors set off in search for the Antipodeans and their supposed
fabulous wealth and utopian existence. What kind of science was appropriate for the
study of this fabulous race? In the following chapter the ‘new science’ which
developed in response to the philosophical and scientific speculation on the nature of
human physiological and social development is examined in light of this question. It is
demonstrated to have arisen in part as a result of the continuing exploration of the
Pacific. Especially as this exploration involved the activities of the world’s first
anthropological association *la Société des observateurs l’homme*, a group which more
than any other exemplified the cooperative spirit in science during the late eighteenth
century. This was a time when:

Direct contacts were established, and there ensued the development of a vast travel
literature—a repository of boundless information, a stimulus to further action, and a
new vehicle for the diffusion of ideas. (Wittkower 1977: 13)

Both this sea-going exploration and the explorative nature of intellectual activity
exemplifies the mechanism of, and the process through which ideas develop, through
ideas change and are in the end diffused.
Chapter 8

The New Science of Man

That singular period if still recent, in which we saw celebrated men led away by an ardent imagination, or with dispositions soured by the misfortunes inseparable from our social state of existence, unite to ridicule that state, and despising the benefits it confers, attribute to savages all the sources of happiness and every principle of virtue. Their fatal eloquence led astray the public opinion, and for the first time sensible men were seen to tremble at the progress of civilization, and to sigh for that miserable condition illustrated in our day by the seductive title a state of nature! Happily modern travellers, by successively describing various savage people, have enabled the world to form a just opinion of those ridiculous sophisms: and our expedition may in this respect still further contribute to the progress of true philosophy.

—FRANÇOIS PéRON, A Voyage of Discovery to the Southern Hemisphere (1809) p. 311.

Focus of Chapter

In this chapter the notion of the existence of a perfect society is examined. The belief in a perfect society is shown to be a spur to the development of anthropology. The notion of the perfect individual is also shown to have influenced scientific theory and more broadly literature as this relates to pre-Darwinian concepts of biological evolution, particularly as expressed in the sentiments expressed in Rousseau’s Discours sur l’origine de l’ingénuité and in Mondobbo’s Origin and Progress of Language (1773). The belief is both a product of the European imagination and part of the folklore of European mapmakers. It is also linked with the misadventures of seafarers and is subject to much projection and misinterpretation. The relationship between the belief in the existence of a perfect society is connected to such florid ideas as El Dorado, Utopia, ‘great southern land(s)’ the ‘new Garden of Eden’ and the ‘noble savage’, and is shown to be an incentive in the development of anthropology as a scientific discipline with a ‘global’ reach. A development which serves as a stimulus to the transmission of ideas across geographic boundaries and across disciplines. It is shown also to be at one and the same time a consequence of philosophical speculation on the nature of human social and physical development, and a result of the political, economic and scientific expansion of European culture through Pacific exploration in the eighteenth century. Particularly the geopolitical factor of international rivalry between Britain and France during the late eighteenth and early nineteenth century, is
seen as stimulating the activities of the Société des observateurs de l’homme in what Lovejoy may have recognised as a prototype for an eclectic and interdisciplinary enterprise. This institution, already introduced and partially discussed in Chapter 3, was in the forefront of this intellectual expansion. The issue of the possible misinterpretation of the concept of the ‘noble savage’ is demonstrated using Lovejoy’s (1948) own analysis of ‘emergent evolution’ in Rousseau and his assessment of the multiple meanings which can be attributed to a reading of a work [Discours sur l’origine de l’ingéralité] which has become part of the cannon of European understanding of the development of Western intellectual history.

The comparison is made between French and English nineteenth century mid-Victorian and late-Victorian understanding of ‘race’, as this effected a conceptualization of the hierarchical nature of the development of nations and of peoples collectively and as individuals.

A Place in the Sun

In the 1945 edition of Race: Science and Politics, first published in 1940, the American anthropologist Ruth Benedict (1887–1948) begins her first chapter by noting that in the late 1880s ‘a French pro-Aryan’ Vacher de Lapouge had written that he was ‘convinced that in the next century millions will cut each other’s throats because of 1 or 2 degrees more or less of cephalic index’ (Benedict 1945: 3).¹ Like Gloria Mc

¹ Georges Vacher de Lapouge (1864–1936) French ‘Darwinist’ who, though now little known, was influential in anticipating ‘a structure of thinking typical of some significant ideological developments during the twentieth century’ (Hawkins 1995: 58). Defying the ‘optimistic progressivism of Spencer’ Lapouge depicted evolution as ‘a contingent process which did not necessarily result in progress’ and promoted an approach (which he called ‘anthropo-sociology’) to understanding social phenomena and the development of civilization by reference to biological racial differences. His main concern most prominently expressed in L’Aryen: son role social (The Aryan: his social role, 1899) was with the perceived threat posed to the ‘creative, energetic, blond-haired and long-skulled Homo Europaeus or Aryans’ by the ‘inferior, servile, dark-haired and short-skulled Homo Alpinus or southern Mediterraneans. At the International Eugenics Conference of 1921 he advocated eugenic methods to replace Africans, Asians and “inferior” whites by whites of “superior” race’ (Dubinin 1975: 71); thus largely continuing the work of the better known nineteenth century French ethnologist Count Joseph-Arthur Cobineau (1816–82), who in his four volume (1853–55) Essai sur l’inegalité des races humaines (Essay on the inequality of human races) explained that the fair-skinned Germanic peoples (Aryans) were a biological master race, and that their culture would flourish as long as it remained free of contact with non-white groups. A third theorist of race Ludwig Gumplowicz (1838–1909) also held views that did away with nineteenth century, particularly Spencerian ideals of individualism and inevitable progress, suggesting rather a cyclical process of change in which ‘communities expanded through conquest and assimilation up to a certain point, beyond which they disintegrated and the process recommenced’. Unlike Darwin and Spencer, Gumplowicz also denied the possibility of ‘moral’ progress (Hawkins 1995: 57). Importantly, Gumplowicz argued that human groups existed in a continual state of internal and external antagonism and competition (Rassenkampf [racial war]) which was only relieved when one racial group prevailed. He wrote that ‘the means by which tribes became peoples, peoples nations, nations grew into races and developed themselves, is the perpetual struggle between races for dominance, the soul and spirit of all history’ (cited in Banton and Harwood 1975: 37). Gumplowicz influenced a number of social scientists concerned with the role of the group as the architect of social relationships, including the social psychologist Gustave le Bon (1841–1931) whose Les lois...
Connahguy (1950) who made her comment about what she regarded as Social Darwinism’s malevolent propensities in the context of the tumultuous and sad events of the Second World War, Benedict set her discussion of race or more specifically ‘racism’ in consequence of this event.

In the twentieth century, a century scarred by genocide, and in the light of the kind of scientific racism espoused by Lapouge, she could rightly say, that the idea that ‘we know our enemies, not by their aggressions against us… but by noting their hereditary anatomy’, and that ‘damnation or salvation in this world is determined at conception’ and that ‘By birth alone each member of a “race” is high caste and rightly claims his place in the sun at the expense of men of other “races”’ (Benedict 1945: 4–5).

Others, like the anthropologist Ashley Montagu have written about the ‘hydra-headed phenomena of “race”’ and about the relationship between science and the ‘idea of race’ or the ‘race concept’ as it developed out of the ‘pressures of rapidly changing socioeconomic conditions of the nineteenth century’ (Montagu 1965: 39).

Montagu (Montagu [1942] 1964: 34) argues that it was not until the end of the eighteenth century that ‘alleged inborn differences between peoples were erected into the doctrine of racism’. Although he acknowledges elsewhere that:

discrimination against persons or groups on the basis of skin colour or “race” did… exist in the ancient world [and that] caste and class differences certainly were made the basis for discrimination in many societies, and in ancient Greece some attempt was even made to find a biological foundation for such discrimination, but this was of a limited nature and never gained general acceptance. (Montagu 1965: 34)

He suggests that the ‘poisonous plant’ was ‘intensively watered by the mainstream of ideas generated by the responses to the challenges of the Enlightenment’ when:

the voyages of exploration of Bougainville (1761–1766), of Wallis-Carteret (1766), of Captain Cook (1768–1779), and of many others had revealed the existence of hitherto undreamed-of varieties of man who, far from being the savages of popular imagination, turned out to be gentle and in many ways distinctly superior to their

\*psychologiques de l’évolution des peuples\* (The psychological laws of the evolution of peoples, 1894) and in particular \*Psychologie des foules\* (Crowd psychology, 1895), though ‘crude and highly racist… raised issues that have continued to engage psychologists ever since’ (Fancher 1997: 358–59).

Magnus Hirschfeld (1868–1935), Jewish intellectual, neurologist and founder in 1897 of the ‘first gay rights organization, the Scientific Humanitarian Committee’ and who in 1913 helped form the Medical Society for Sexual Science and Eugenics. Convener of the first congress of the World League for Sexual Reform he regarded Vacher Lapouge as the ‘prophet of German racism’ and Gobineau as a ‘misanthrope’. In \*Racism\* (written in exile from the Nazis after 1933, and published posthumously in 1938) Hirschfeld brings together all the elements that link the idea of race with those of racism in all its biological sociological and philosophical rationalizations (see Lauriston & Thorstad 1976; Charlotte Wolff 1986. \*Magnus Hirschfeld: A Portrait of a Pioneer in Sexology\* (London and New York: Quartet Books).
discoverers. Romantic ideas of a Golden Age, the deductions of philosophers, and the discoveries of explorers in an age that not only was ready to, but already was taking a new look at man, seeing him bold and clear for the first time, gave men furiously to think and revalue some of their most cherished beliefs. (Montagu 1965: 34–5)

‘Soon the inhabitants of the most distant parts of the world began to be described, pictured, and some of their skulls and handiwork were collected and put into museums’ (Montagu [1942] 1964: 47).

This ‘tradition of empirical observation and evaluation’ had been set by Cook during the three great voyages of discovery: in the Endeavour [1768–71]; in the Resolution and Adventure [1772–75] and in the Resolution and Discovery [1776–80], ‘the first British voyages to carry trained astronomers, naturalists, and artists to observe and record what they saw’ (Howse 1979: 119). Cook was ‘an astute, curious and yet objective observer [who] eschewed conjecture and never firmly laid down a coast which he had not seen or traced’ (Mackay 1985: 7). He was a man who ‘raised his calling to the stature of a science’ (Beaglehole [1934] 1966: 309; Beaglehole 1974). Similar undertakings by the French would further demonstrate ‘the inter-relationship between exploration, science and empire’ which had developed between the end of the Seven Years’ War in 1763 and the outbreak of the French Revolution some thirty years later (Beaglehole [1934] 1966; Williams 1978; Mackay 1985).

Such voyages of discovery made by the French and English tremendously informed and extended the naive anthropology just beginning, and stimulated the popular interest in ‘varieties of mankind’ and encouraged the notion of the ‘noble savage’.

Charles de Brosses

The French historian Charles de Brosses’s (1709–77) theoretical yet influential Histoire des navigations au terres australes (1756) strengthened the resolve of the French to explore the South Seas. De Brosses was encouraged by the naturalist Georges Buffon who had already speculated in his Histoire naturelle ‘on the existence of new species on the undiscovered lands in the Pacific’ and believed that a ‘history’ such as that being undertaken by de Brosses ‘would be an important work at a time when “a neighbouring power [England] is visibly assuming a universal command of the sea”’ (Buffon, cited in Dunmore 1965, 1: 46). The commercial benefits of finding new plants and animals was emphasised. De Brosses even argued for the acquisition of ‘faraway islands as penal settlements’ and unusually, he tempered this suggestion with arguments that these places should be ‘mixed settlements, where the less fortunate can obtain a second chance to build their life’ (Dunmore 1965, 1: 48). As well as anticipating the creation of what would ultimately be an English settlement at
Port Jackson [Sydney] it was de Brosses—from his desk—who coined the names Australasia and Polynesia. Both Cook and his sponsor Joseph Banks read de Brosses.²

The Necessity to Engage Native Populations

De Brosses also argued on the necessity to engage native populations, and while admitting that they might ‘lose a certain innocence’, in defence to this proposition he argued:

We must also remember how much they would profit, by adopting our ideas of a regular and well-ordered society; their minds would be opened, and, and formed, their savage manners softened: In short, those nations would become men, who have just now nothing human but their figure. (De Brosses cited in Williams 1978: 5)

The French had for long years speculated on the existence of a great southern continent. The existence of such a land-mass had become an imperative for both imperial and scientific reasons. Conceptually and aesthetically since the sixteenth century the notion of a spherical earth demanded a symmetrical arrangement of lands above and below the equator. Without an ‘antipodean continent’ according to the ‘equilibrium theory’ as it has been called ‘the world would topple over’ (Dunmore 1965, 1: 3). It was an idea supported by both sailing and armchair geographers (Dunmore 1965). While the existence of such a place would eventually be disproved by Cook ‘the great dispeller of illusion’, according to the utopian theory, in this region would be found as ‘many nations and kingdoms, as many riches and articles of trade, as Europe herself encompassed’ (Dunmore 1965, 1: 3; Beaglehole 1972: 698). To those who set out for it:

It was a dream of gold, of strange races, of entire populations to be saved for Christ, of wealth and of conquest. There both El Dorado and Utopia had their last refuge. (Dunmore 1965 1: 3)

The round-the-world (1766–69) voyage of Louis de Bougainville (1729—1811) seemed for those who read the reports, to confirm stories of a utopian existence for humanity in the Pacific. Bougainville was an aristocrat and hero of the Seven Years War. He was well-read in Voltaire, Montesquieu, Rousseau and Buffon, and was a member of the Royal Society of London as well as of the Société des observateurs des l’homme. Bougainville had been preceded to the central Pacific by Captain Samuel Wallis in the Dolphin, and Lieutenant Phillip Carteret in the Swallow. Neither the Dolphin nor the Swallow had carried any civilian observers or scientific personnel,

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² De Brosses based his work on the then available accounts of voyages into the Pacific by Magellen, Mendana, Quirós, Torres, Tasman, Dampier, Schouten, Le Maire, Roggeveen and Anson. The book found its way into the English language via John Callender’s *Terra Australis Cognita* (1766–68).
suggesting that the main reason for the English to be in the Pacific at this date, was a strategic and commercial one (Williams 1978). Wallis had come on to the islands known as Otaheite (Tahiti) by ‘chance’, and claimed them for the British Crown in 1767. A year later, Bougainville would claim the same island he called New Cythera for France.3

**New Cythera**

The Bougainville expedition, as well as carrying Philibert Commerson ‘the Royal Botanist and Naturalist’, also included a number of civilian observers, and it was they who penned the written accounts of the so-called Island of Love, which supported by Denis Diderot’s *Supplément de Bougainville* help to create the ‘romantic French legend of Tahiti’ (Williams 1978).

Bougainville’s and others accounts of the discovery of Tahiti and its inhabitants, fired the French imagination and would serve to create an image of this island as a South Sea paradise, a utopia, freed of all the perceived evils and constraints of European society. Tahiti would be the new Garden of Eden providing an ‘intellectual and emotional impact out of all proportion to its geographical significance’ (Williams 1978: 7–9, 11).

Before leaving New Cythera, and as a parting gift to the New Cytherians, Bougainville planted a garden of wheat, maize and vegetables, and gave turkeys and geese, which he hoped like the plants, might multiply and help the people to supplement their diet (Dunmore 1965, 1: 81–3). Significantly, for the future of both philosophy and science Bougainville took back with him one Ahu-toru (or Aoutourou) brother of a chief of the New Cytherians. Ahu-toru would provide useful evidence in the currently fashionable debate on the development of human society. Before and after his presentation at Court in April 1769, Ahu-toru—like Omai, the native of the Society Islands brought back to England by Cook’s associate Captain Furneaux aboard the *Adventure*—the Tahitian would be ‘scrutinized, studied, discussed, and

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3 The legend relates that it was on the island of Cythera that Aphrodite the Greek goddess (Roman Venus) of love and beauty rose out of the sea. The theme had become a favourite one for artists—there is the famous Alessandro Botticelli (1445–1510) *Birth of Venus* of 1486— and the subject is particularly associated with the French painter Antoine Watteau (1684–1721) and his masterpiece *L’embarquement pour l’il de Cythère* (*The Embarkation for Cythera*). Louvre, Paris). Alan Moorhead 1966 in *The Fatal Impact* (London: Hamish Hamilton) reflects on the contrast, of what could be described as the urban reality of Watteau’s subject, with its nostalgic promise of escape and its ‘sophisticated longing for the unreal’ and he contrasts this with the harsh reality of life on board ship for the ordinary seaman, and the effect of this on the perception of these sailors when they came into contact with island life. By comparison with life at sea, life on a Pacific island was Utopia made manifest. There was no need to resort to classical mythology, and desertion was common!
admired by scientists, philosophers, and linguists’. After all, ‘Bougainville’s protégé was that most interesting of all eighteenth-century phenomena—a noble savage’ (Hammond 1970).

It was Commerson, who anticipating his captain, rushed into print with a rapturously enthusiastic description of Tahiti which was published in the *Mecure de France* in November 1769. Commerson was an admirer of Rousseau and believed that in New Cythera he had found the perfect society of which Rousseau had written in his work of ‘speculative anthropology’ [*Discours*] which had been published in 1755. Rousseau asked: ‘which—civilized or natural life—is the more liable to become unbearable to those who experience it?’ and argued in response, that ‘Nothing… could be as miserable as a savage man dazzled by enlightenment, tormented by passions, and arguing about a state different from his own’ (Rousseau 1984: 97). He and came to the conclusion—and this the way it was interpreted by Commerson—that:

Such a society was one which embodied the state of ‘natural man, born essentially good, free from all preconceptions, and following, without suspicion and without remorse, the gentle impulse of instinct that is always sure because it has not yet degenerated into reason. (Rousseau 1984: 97; Commerson cited in Dunmore 1965: 110)

It was a society remarkably in accord with descriptions of ‘primitive’ societies brought back by the seafarers.

Even after corrective and more down to earth observations made by later travellers including Cook, and those in Bougainville’s own *Voyage autour du monde* 1772 (A voyage round the world), the impact of the earlier voyage continued to influence French intellectual life for some time to come. It is likely that Diderot made use of Commerson’s as well as Rousseau’s apparently utopian view to script the arguments contained in his *Supplément au voyage de Bougainville* [1772] which like Fontenelle’s *Entretiens* before it and Disraeli’s *Tancred* after, is a dialogue between two individuals—in this case, called A and B—discussing a contemporary philosophical problem: the merits of ‘savage’ over ‘civilized’ life.

Primarily a discussion of the social, particularly sexual mores of the New Cytherians; it contrasted their ‘natural’ seemingly happy way of life, with the ‘artificiality and desiccation of an ultra-refined and formalized society’ characteristic of Diderot’s own world, a world governed by repressive rules on private morality, repressive religion and repressive politics (Crocker 1954: 332). In what is really a polemic on the nature of progress, it carries a warning against the transportation of European civilization and its vices to the South Seas.

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4 Partly the voyage of Marion du Fresne was to return the Tahitian to his home.
The idea of an innocent ‘other’ was by no means a new one. The ‘convention’ had its origins in the ‘Golden Age’ of classical literature. Michel de Montaigne (1533–92) explored the theme in his essays, particularly the essay titled ‘Of the Caniballes’ in which he describes a perfect society called appropriately ‘Antartike France’ where the inhabitants:

possess “the true and most profitable virtues, which we have bastardized, applying them to the pleasure of our own corrupted taste.” They are blessed with all the native goodness which modern sophistication has destroyed the theme which became entrenched in Rousseau. (Fairchild [1928] 1961: 16)

This ‘illusioned naturalism’ which also embraced the ‘cult of the child’ and the ‘cult of the peasant’ became a dominant influence in nineteenth century Romanticism (Fairchild [1928] 1961). It has survived into the twenty-first century in the settings of popular ballets of the Romantic period such as Giselle, choreographed by Jean Coralli and Jules Perrot in 1841.

Glorification of the State of Nature

The discussion of human biological development had in the eighteenth century became intertwined with questions about what constitutes the perfect society. To this was added Cabanis’ concept, presented in Chapter 3 in this thesis of the nature of the ‘socially-desirable individual’, and to a broader discussion of the nature of progress. The association of these ideas: of perfection, of progress, and evolution, produced in a complex mix liable to lead to errors of interpretation (Lovejoy (1948)).

Lovejoy (1948) takes Rousseau’s well-known theme pertaining to the ‘glorification of the state of nature’ presented in the Discourse, essentially a pre-Darwinain history of human development, and asks—in a vein similar to Morse Peckham’s (1959: 32) question: ‘Is it true that what Darwin said had very little impact, but what people thought he said, that is, what they already believed and believed to have been confirmed by Darwin had enormous impact?’—and asks this of Rousseau.

Lovejoy (1948: 14) argues that ‘confusion has arisen… through a neglect to note the ambiguity of terms employed in the discussion’, recognizing in particular that the term ‘state of nature’ was used in ‘three distinguishable senses’ at the time, and was so used (and used interchangeably) by Rousseau. In its first and most commonly understood sense, it was used to describe the ‘primeval condition of man’; in its second sense, it was a term arising from political theory to denote ‘individuals and groups not subject to control by any government’, and in its third sense, the one most commonly used in the eighteenth century, the term was used to:
designate a state in which the arts and sciences—civilization in its non-political elements—had made least progress… and [according to Lovejoy] it did not follow that the primitive stage in the cultural sense, was co-extensive with pre-political one. (Lovejoy 1948: 14)

Lovejoy (1948: 20) comes to the conclusion that while Rousseau held that:

Primitive man was [also] happier than civilized successors… He maintains it on the grounds on which many would still maintain that the animals in general experience less suffering than man. The primeval bête humaine, living in the moment, was untroubled either by regrets or by fears of coming evil… There is nothing particularly paradoxical about this. That men are… less happy than dogs or sheep, is a familiar, almost platitudinous conjecture… Rousseau’s thesis about the happiness of the state of nature has essentially the same meaning… Later in the Discourse he expressly declares that for man “to place himself on the level of the beasts, which are the slaves of instinct,” would be to “degrade his nature.”

Rousseau contends that primitive humanity has an ‘innate repugnance to see others of his kind suffer’ yet in spite of this seemingly desirous state of affairs, Rousseau at the very beginning of Discours had described the early phase of human existence in an extremely harsh light (Lovejoy 1948: 21). The only thing which separated humans from animals was their as ‘yet undeveloped potentialities’. In fact Rousseau as well as arguing the relationship between humans and the great apes, believed that the gorilla and chimpanzee as currently observed in Africa, lived in a state more developed than that of early man. Gorillas and chimpanzees are simply ‘veritable savage men whose race, dispersed at some early period in the forest, has never had occasion to develop any of its latent faculties’. Thus, Lovejoy reasons:

it would be scarcely conceivable… that he [Rousseau] should have wished his readers to understand that he regarded as the ideal existence for man a state of virtual idiocy—the life of a completely unintelligent, unsocial, non-moral though good-natured beast. (Lovejoy 1948: 21)

In an era when the word ‘natural’ was considered a term ‘of the highest possible eulogy’ it was, Lovejoy (1948: 23) suggests:

the primitivistic strain that was (contrary to the usual supposition) the traditional and imitative side of the content of the Discourse, the relatively innovative side of it consisted in a repainting the true child of nature so that he appeared in a much less pleasing guise…

In the end, Rousseau in his analysis of the development of human society, as Lovejoy reads him, becomes a harbinger of Darwin. Increase in population and competition [for food, with other animals] leads to ‘a struggle for existence’.

This struggle, Rousseau intimates, might have ended in the elimination of our species, if man had been able to fight only with tooth and claw. But under the pressure of necessity, another endowment, which is le caractère spécifique de l’espèce humaine, began to manifest itself—intelligence, in its several elements and manifestations… Because it is thus the distinguishing character of man among animals, and because its unfolding is gradual and progressive, Rousseau calls it the faculté de se perfectionner, or, for short, “perfectibility”… The term
“perfectibility”… became the catchword of Condorcet and other subsequent believers in the reality, necessity, and desirability of human progress through a fixed sequence of stages, in both past and future. (Lovejoy 1948: 23–4)

It is the third meaning of the term, the intellectual connotation of ‘state of nature’ which dominates the picture.

#### Mondobbo

That there was scepticism about the idea of an ideal human existence at the time is demonstrated Lovejoy (1948) suggests, by the remarks made by Dr Johnson to his biographer James Boswell in 1769. To stir Johnson, the ‘Great Bear’ to fulminate in a witty fashion for his benefit, Boswell would bring up topical subjects for discussion. One such topic concerned an attempt by Boswell to ‘argue for the superior happiness of the savage life…’ To which Johnson responded:

> "Sir there can be nothing more false. The savages have no bodily advantages beyond those of civilized men. They have not better health; and as to care or mental uneasiness, they are not above it, but below it, like bears. No, Sir; you are not to talk such paradox: let me have no more on’t. It cannot entertain… Lord Mondobbo one of your Scots judges, talked a great deal of such nonsense. I suffered him; but will not suffer you."—BOSWELL.  “But, Sir does not Rousseau talk such nonsense?”—JOHNSON.  “True, Sir, but Rousseau knows he is talking nonsense, and laughs at the world for staring at him.”

> BOSWELL.  “How so, Sir?”—JOHNSON.  “Why, Sir a man who talks nonsense so well, must know that he is talking nonsense. But I am afraid (chuckling and laughing), Mondobbo does not know that he is talking nonsense.”

This suggests that Johnson merely regarded Rousseau as an ‘insincere’, and Mondobbo as a ‘sincere primitivist’ (Lovejoy 1948: 40). Lovejoy holds that Johnson missed the important fact about both writers: that both, while appearing to meditate on the nature of primitive life, were positing a way of thinking that tended to destroy primitivism. Particularly, Lovejoy (1948: 40) suggests that Rousseau’s *Second Discourse* helped introduce a ‘sort of sociological evolutionism’ and adds that such ‘evolutionism is in essence… the logical opposite of primitivism… though in the middle of the eighteenth century the two appear in several curious combinations’.

James Burnet, Lord Mondobbo (1714–99) author of *Origin and Progress of Language* (1773), and Rousseau had much in common in their theory of human development. They shared six theses summed up by Lovejoy (Lovejoy 1948: 46) in the following taken from the *Discours*:

1. That the original condition of man was a state of pure animality, in which our ancestors possessed no language, no social organization… and were in no way distinguishable from the apes by intellectual attainment…
2. That… the state of nature… was not an ideal state, except with regard to the physical condition of the human animal…

3. That man and the ‘orang-outang’ are of the same species…

4. That… the chief psychological differentia of the human species consists not in any mental attributes or powers discoverable in mankind throughout history… but solely in the capacity for the gradual unfolding of higher intellectual faculties—what Turgot and Rousseau called perfectibilité. Thus man’s history begins in a stage in which… he is not yet human, in which he was essentially differentiated from the other animals only by the latent potency of progress. It was not until he emerged from the state of nature that he began to be truly man.

5. That… human history… should be regarded not has it has commonly been regarded, as a process of decline from a primitive perfection… but rather as a slow, painful ascent from animality, through savagery, to the life of a rational and social being.

6. That, consequently, there was needed a new historical science which should trace out the successive stages of this process of intellectual development and social evolution, and that for this purpose what was chiefly requisite was a far more thorough study… of races who still remained at one or another of the typical cultural stages through savagery, to the life of a rational and social being.

Mondobbo went further than Rousseau particularly in his assertion of the ‘probable consanguinity’ of humans and apes, which Rousseau had buried in a note, where it remained unnoticed by his own and subsequent generations (Lovejoy 1948).

Mondobbo defended this hypothesis in one hundred pages of the first volume of Origin and Progress of Language published in 1773. Again Dr Johnson thought that Mondobbo was talking as much nonsense of apes as of savages. To Boswell he said:

“Sir it is all conjecture about a thing useless, even were it known to be true. Knowledge of all kinds is good. Conjecture, as to things useful, is good; but conjecture as to what it would be useless to know, such as whether men went on all four, is very idle”. (cited in Lovejoy 1948: 46)

Eighty-five years later the Bishop of Worcester’s wife would remark of the ‘implicit’ idea expressed by Darwin in Origin of Species, that humans might be descended from ape-like ancestors: “‘Descended from the apes! My Dear, let us hope that it is not true, but if it is, let us pray that it will not become generally known’” (cited in Darwin 1979: 217). Mondobbo argued that the Orang was:

an animal of the human form, inside as well as outside: That he has human intelligence, as much as can be expected of an animal living without civility and the arts… they live in society and have some arts of life for they build huts, and use an artificial stick for attack and defence, viz., a stick; which no animal merely brute is known to do. (cited in Lovejoy 1948: 48)

It is thus to Mondobbo that we must credit the ‘affecting picture’ of the ‘gentlemanly gorilla and civil chimpanzee’; images which were to be used so effectively by cartoonists in the period after the publication of Darwin’s Origin of Species.
Both Roussueu and Mondobbo made use of available information about contemporary primitive society which came from ‘travellers tales’, and from scientific sources like Edward Tyson’s *Orang-outang, sive Homo Sylvestris; or, the Antomy of a Pygmie Compared with that of a Monkey, an Ape, and a Man* (1699) the first credible study of the anatomy of a chimpanzee. Both scientific and non-scientific speculation created an argument for a direct relationship between the ape and contemporary primitive cultures, for which the native populations of Africa, the Pacific Islands and New Holland would provide the best evidence. The notions of a ‘missing link’ had its origins in the semantic confusion created by the imprecise use of such descriptives as Hottentot, Pygmie, Orang-outang, ape and chimpanzee.

**Students of the Variety of Mankind**

Most eighteenth century ‘scientific students of the variety of mankind’, philosophers like Rousseau, and the German philosopher Johann Gottfried Herder (1744–1803) seem to have come out in favour of a view of human groups which stressed their fundamental similarities rather than their differences. Differences which were obvious were put down to environmental contingencies. The view is, according to Montagu, well expressed in the following passage taken from Herder’s *Ideen zur philosophie der geschichte der menscheit* (Outlines of the philosophy of man, 1784–91, trans. 1800):

I could wish the distinctions between the human species, that have been made from a laudable zeal for discriminating science, not carried beyond due bounds. Some for instance have thought fit to employ the term races for four or five divisions, originally made in consequence of country or complexion but I see no reason for his appellation. Race refers to a difference of origin, which in this case does not exist, or in each of these countries, and under each of these complexions, comprises the most different races… In short, there are neither four or five races, nor exclusive varieties, on this Earth. Complexions run into each other: forms follow the genetic character: and upon the whole, all are at last but shades of the same great picture, extending through all ages, and over all parts of the Earth. They belong not, therefore, so properly to systematic natural history, as to the physico-geographical history of man. (Herder cited in Montagu 1965: 37–8)

The primacy of inherent biological difference he suggests, came to assume a greater importance in European thought largely as a result of two predominantly economic, rather than scientific enterprises: slavery and imperialism.

**Racial Discourse and the Contextualist View of Science and Change**

David Lorimer (1996) suggests that great care must be taken at this juncture, the late twentieth century, regarding the discussion of race, (particularly as it pertains to our perception of racism in the nineteenth century). He argues that scholars ‘desirous of offering a critique of racism have looked to ahistorical forms of explanation, that leave little scope for the dimension of change over time’, stressing the importance of the
role of [both] context and 'human agency… in affecting change' (Lorimer 1996: 20). He argues specifically against the ‘crude polarities’ defined by ‘internalist’ and ‘externalist’ approaches to understanding the history of (particularly Victorian) science, to specific issues like race.

The “internalists,” [he suggests] see change as a product of the logic of scientific discovery itself, whereas the “externalists” put greater emphasis on changes in the social and historical context… Those who emphasize the continuity of racial stereotypes over time within the changing form of biological determinism from comparative anatomy, Darwinian evolution, and eugenics tend to be in the internalist camp. The externalists put greater emphasis on the links between science and… colonialism, on changes in the institutional basis of science and the social background of scientists, and on the association of professional science and the State in articulating the hegemonic racism of the late Victorian and Edwardian periods. (Lorimer 1996: 20)

The:

Contextualist approach leaves scope for the creative response of scientists seeking to understand natural phenomena, while recognizing that the scientists’ perception and conceptualization of nature owed much to their social and cultural milieu. (Lorimer 1996: 20)

He further suggests that by ‘pursuing the differences within [Victorian] racial discourse, as between the humanitarian activists and the professional scientists, one can gain a clearer sense of the direction and dynamics of historical change’ (Lorimer 1996: 32).

In an earlier discussion, and again with respect to the Victorians, Lorimer (1988: 428) argued that:

much Victorian discussion of race took place in a haphazard fashion, mixing observations of travellers with common prejudices. This was a commonplace discourse not only of everyday conversation and of the daily press, but also of scientific gatherings and publications including the… Royal Geographical Society, and the Anthropological Institute.

He also makes the important observation about the chronology of what he calls ‘scientific racism’. The seeming lack of precision in the Victorian discussion of race has also been noticed by Greta Jones (1980), and Lyndsay Farrell specifically comments upon the lack of consistency of the concept as it was applied by the Karl Pearson and many other late Victorians: For Pearson race was simply ‘an interbreeding group that retained its characteristics from generation to generation’, while at the same time there were ‘higher’ and ‘lower’ races. The ‘white Aryan races [of Europe] were superior to the black, inferior races of Africa. Contact between them resulted in the domination of the latter by the former’ (Farrell 1979: 302).

G. W. Stocking ([1968] 1982) has similarly argued against adopting a ‘tone of anachronistic patronization’ when discussing ‘aspects of nineteenth century racial
thought. He argues for instance that while racism, or rather racialism might be intellectually disreputable in the mid-twentieth century [at the time that he is writing his essay in 1968] this was not so in the late nineteenth or early twentieth century.

Given the available data on “primitive” life and the contemporary frameworks of scientific and biblical thought, polygenism was an alternative which intelligent—and even humane—scientists, could and did, reasonably embrace. Indeed polygenism spoke to issues which were not by any means all answered by the Darwinian assumption that all men had descended from a common evolutionary ancestor. (Stocking [1968] 1982: 42)

**Polygenism and Monogenism**

Polygenism was the term used to describe the notion that the physical differences between the races were seemingly so great—the difference in appearance for example between the African Negro and the North European—that this difference could only be accounted for by considering these racial groups as belonging to separate species or specially created and distinct forms of humanity. It was a position, according to Greene (1959) supported in the main by 'non-scientists’ like Voltaire, and most prominently by the Scottish jurist and philosopher Henry Home, Lord Kames (1696–1782) who in *Sketches of the History of Man* (1774) had speculated as to ‘whether there are different races of men, or whether all men are of one race without any difference but what proceeds from climate or other external cause’ (cited in Stocking 1968: 44).

Kames—whose fame rests on his contribution to the study of aesthetics—had decided that God’s desire for perfection and harmony had led Him to create:

many pairs of the human race, differing from each other both externally and internally; that he fitted these pairs for different climates, and placed each pair in its proper climate; [and] that the peculiarities of the original pairs were preserved entire in their descendants. (cited in Stocking 1968)

The opposing view was that of the monogenists. Monogenists believed in the literal Biblical account of the creation of the human race, as told in Genesis in the story of Adam and Eve, and the subsequent peopling of the world by the descendants of Noah after the Flood. These monogenists were called ‘Adamites’. A second group of monogenists, among whom could be counted many of the scientists of the Enlightenment, argued for one human race originating in central Asia and modified [human race as varieties] over time by environmental conditions produced by the exigency of migration. Although these ‘rational monogenists’ believed that human difference in skin colour, body shape and intelligence was caused by environmental press, they did not completely rule out the possibility of Divine intervention in human creation. A third group of monogenists the ‘transformists’ derived their ideas from
Lamarck. Transformist monogenism down-played the role of time as a modifier in species change. Rather, in this system, species developed from ‘a small number of primordial germs or monads, the offspring of spontaneous generation’ and species passed through a series of changes which produced successive transformations. Humans, the result of a successive transformation of apes, were ‘“isolated extremities of the branches and boughs” of the organic kingdom’ (Topinard 1878, cited in Haller 1971: 71; Haller 1971).

Transformist monogenism was ridiculed, particularly by conservative monogenists, including Cuvier, but was nevertheless supported by Charles Lyell, Herbert Spencer and Bory de Saint Vincent (Haller, 1971). The latter is interesting in that Bory de Saint Vincent (1780–1846) travelled part of the way as a zoologist on a scientific expedition made to Australia in 1800 under the captaincy of the ‘navigator-scholar’ Nicolas Baudin (1754–1803), a voyage instituted and supported by the members of the Société des observateurs de l’homme (Kilborne 1982; Jones 1988: 40). It was Bory de Saint Vincent who developed a system of human classification based on hair type, dividing humanity into straight-haired or leitrichi and woolly-haired or ulotrichi, which roughly corresponded to the French polygenist Joseph Julien Virey’s two species: black and white (Topinard 1890: 351; Stocking 1968; Haller 1971). It was one of many attempts in the nineteenth century to create a ‘scientific’ measure of difference based on external physical features.

First ‘Field Trip’ to the South Pacific

In March 1800, Baudin suggested to the Société des observateurs de l’homme that it should sponsor an expedition of scientific and geographical discovery to the South Pacific. The proposal was presented in April 1800 to the First Consul, Napoleon Bonaparte, himself a member of the Société. Bonaparte approved the plan and preparations began in late spring and early summer of 1800 (Dunmore 1969). Thus the short-lived Société des observateurs de l’homme became the first ‘anthropological’ society in the world to attempt a ‘field trip’ to the South Pacific.

As well as the biologists Cuvier and Lamarck, the physicians Cabanis and Pinel the the Société also included among its large membership the botanist Antoine-Laurent de Jussieu (1748–1836), the linguist and pioneer educator of deaf-mutes Abbé Sicard (1742–1822), and the soldier-turned-philosopher Joseph Marie Degérando (1772–1842). All were dedicated to the ‘science of man in his physical, moral and intellectual aspects’ (Kilborne 1982). Jussieu who indirectly influenced the heredity-environment debate, more immediately encouraged the nascent discipline of anthropology. The work of Abbé Sicard at his National Institute for the Deaf and Dumb, influenced a
young doctor called Jean-Marc-Gaspard Itard (1775–1838), who in 1800 attempted to train an ‘L’enfant sauvage’ (‘Young savage’): the so-called ‘Wild Boy of Aveyron’, using methods evincing his belief that environmental deficit resulted in maladjustment and retardation which only education could correct; an idea he would latter come to doubt, as Citizen Pinel had already done, when he argued, that from his experience at the Bicêtre, of studying ‘children incurably affected with idiocy’—children he regarded as having some innate and ‘incurable malady’—that there existed in his professional opinion, ‘a perfect identity between these children and the Savage of Aveyron’ which no amount of education could completely undo (Itard [1894] 1962: 6). This physiological and hereditarian element in Pinel, as opposed to that which stressed the psychological and psycho-social may be contrasted by the contribution made by Joseph Degérando to the development of a new science of human observation.5

Jussieu published a system of classifying common plants based on observations he made in the Jardin du Roi [Royal Gardens] at Trianon. There, his uncle Bernard de Jussieu arranged plants in a manner styled on the system of the great Swedish naturalist Carl Linnaeus (1707–78) (Mason 1962). Antoine-Laurent published his Genera planterarium secundum ordines naturales Disposita, juxta methodum in horto regio parisiensi exaratam. anno 1774 (Genera of plants arranged according to their natural orders, based on the method devised in the Royal Garden in Paris in the year 1774) in 1789, and thereafter supported the voyage of Baudin. His classificatory work would be continued in the nineteenth century by the family Candolle. First the father, Augustin Pyrame de Candolle (1778–1841) who laid the foundation for a modern evolutionary history of plants, and coined the word ‘taxonomy’; and then his son, Alphonse Pyrame de Candolle (1806–93) who continued his father’s work, and conducted an important correspondence with Francis Galton. According to Galton, it was ideas presented in Candolle’s Histoire des sciences et des savants duex siècles, précédée et suivie d’autres études sur des sujets scientifiques en particular sur l’hérédité et la sélection dans l’espèce humaine (A history of the sciences and thinkers over the past two centuries, preceded and followed by other studies on the subject of science, and in particular heredity and the natural selection of humankind, 1873) which led to the writing of English Men of Science: Their Nature and Nurture (Galton 1908; Fancher 1979; Fancher 1983). It was as a result of their ‘extensive correspondence’ on the relative importance that might be given to heredity and environment in shaping ability that the term ‘nature-nurture’ was brought into being.


J. J. Conley (1984: 184–85) argues that while the phrase ‘nature-nurture’ was first popularized by Galton in 1874, Fancher ‘is in error both as to the originator… and of the time period in which the first modern usage of the term was established’. Conley credits Shakespeare as the first to use it in its modern sense in The Tempest(c. 1611):

A devil, born devil, on whose nature
Nurture can never stick: on whom my pains
Humanely taken, all, all lost, quite lost,
And, as with age, his body uglier grows,
So his mind cankers.

[act 4, scene 1]
A New Science

A ‘plan of itinerary for citizen Baudin’ presented to him by the Institut National instructed him [with Jacques-Félix-Emmanuel Hamelin (1768–1839) as second-in-command] to take charge of two ships, Le Géographie and Le Naturaliste, and to ‘examine in detail... the coasts of New Holland, some of which are entirely unknown, while others are known only imperfectly’ (Baudin 1974: 1). He was informed by the Comte de Fleurieu who was a member of both the Société and the Institut, that New Guinea and its islands was also on the itinerary:

By combining the work which will be done on these various parts with that of the English navigators [Matthew Flinders] on the east coast and of d’Entrecastreaux on Anthony van Diemen’s Land, we shall come to know the entire coastline of this great south land, which situated not far from Asia where, for three centuries, Europeans have been forming settlements, has seemed until recently to be condemned to a sort of oblivion.

The reconnaissance of the northern part of New Holland leads to an examination of the western part of New Guinea...

All these countries, more or less new to us, present a vast field for geographical operations and for research of all kinds which can combine to perfect the natural sciences and increase the mass of human knowledge. (Baudin 1974: 1 [emphasis in original])

The expedition was intended to be in the tradition of the Bougainville circumnavigation, and as a scientific voyage was far more successful, though unlike the Bougainville voyage in the long run the enterprise was almost totally forgotten. Bougainville had brought back almost no ethnographic material, although he did bring back a live Tahitian. The expedition would return to France with some ‘100,000 zoological specimens of large and small animals, 2500 of which were new specimens’ (Laissis 1988: 33). The artists who accompanied the voyage, Charles-Alexandre Lesueur (1778–1846) and Nicolas-Martin Petit (1777–1804) would produce numerous drawings and paintings of the indigenous inhabitants of Nouvelle-Hollande and Terre de Diémen, including some of the ‘most beautiful portraits ever done of Australian Aboriginal people’ (Hewes 1968: 287; Mander-Jones 1965; Marchant 1982; Jones 1988: 63; Laissis 1988; Bonnemains 1988; see also Brown 2001).

The committee formed to oversee the great journey included Cuvier, Sicard, and Degérando. Baudin received two sets of instructions from the Société. One by Cuvier and one by Degérando. Cuvier’s was titled Note instructive sur les recherches à faire relativement aux différences anatomiques des diveres races d’homme (An instructive note on the researches to be carried out relative to the anatomical differences

For further reference to the Candolle-Galton correspondence see Pearson’s Life... of Galton, Vol. 2.: 131–56.
between diverse races of man). Methodologically it promoted comparative anatomy, and stressed the need to observe closely the races of ‘the South Sea and New Holland’ in order to understand the range and limits of human variability. To this end, the collection of skulls and the making of accurate drawings of aboriginal peoples was advanced. Cuvier advocated a no-nonsense approach to collecting ‘comparative objects’, i.e., skulls, advising that:

> Travellers should not neglect any opportunity when they can visit the places where the dead are placed, when they will witness some fight or take part in one. When they can, by any means, lay their hands on a corpse, they ought to note carefully every everything pertaining to the individual. (Cuvier 1800, cited in Jones 1988: 37; Stocking 1968: 30)

If they could, the travellers were to procure a cadaver and:

> Boil the bones in a solution of caustic potash and rid them of their flesh in several hours” [and] once prepared, the bones of each skeleton were to be put in bags, labelled, and sent to Europe, where they might be reassembled. (Cuvier 1800, cited in Jones 1988: 37; Stocking 1968: 30)

The absence of deceased specimens should prove no obstacle either, and Cuvier provided the artists with reasoned instructions of what was required in the way of accurate and ethnologically useful studies of living specimens. Cuvier complained about the inaccuracy of the images of ‘the negro’ produced by both ordinary travellers and artists who he argued, were wedded to the conventions of portraiture taught by the European art schools (Jones 1988: 37–8; Stocking 1968)

**Joseph Degérando**

Degérando’s instructions— which Jones (1988: 38) has described as ‘tender-hearted’ by comparison with those of Cuvier—*Considérations sur les diverses méthodes à suivre dans l’observation des peuples savages* (Considerations on the methods to follow in the observation of savage peoples) became the first formal statement of the

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6 Cuvier supported J. F. Blumenbach’s identification of three main races of the old world. The white-skinned Caucasian, the yellow-skinned Mongol and the black-skinned Ethiopian. Blumenbach regarded these as the main races, of which the Caucasian was the most beautiful, and the basic stock from which the others derived. To this were added the new-world races, the American and Malayan. Based on skull shape, the Mongolian and Ethiopian ‘were extreme degenerations of the original autochthon [original inhabitants]. He relegated the two other races, American and Malayan, to transitional phases of only minor importance. The American represented the transitional passage from Caucasian to Mongolian, while the Malayan was the intermediate variety in the passage from Caucasian to Ethiopian’ (Haller 1971: 4–5). Blumenbach published his racial theory in a treatise *On the Natural Variety of Mankind* in 1781, and his most important work, a descriptive exposition of his investigation of 60 human skulls, *Collectionis suae Craniorum Diversarum Gentium Illustratae Decades* (Illustrated… Collection of Craniums of Various Races) was published between 1790 and 1828.

7 The source is J. Copans and J. Jamin 1978. *Aux origins de l’anthropologie français: les mémoires de la société des observateurs de l’homme en l’an Viii*, Paris. This work has not been fully translated into English.
practical methods for an as yet unnamed new ‘Science of Man’, which as Degérando put it, was ‘a science of observation’ whose task it was to unravel the secrets of the development of human civilization (Degérando [1800] 1969: 61).

But what are the means for the proper study of man? Here the history of philosophy, and the common voice of learned men give reply. The time for systems is past. Weary of its centuries of vain agitation in vain theories, the pursuit of learning has settled at last on the way of observation. It has recognized nature as its true master. All its art is applied in listening carefully to that voice, and sometimes in asking it questions. The science of Man too is a natural science, of observation, the most noble of all. What science does not aspire to be a natural science? Even art, which men sometimes contrast to nature, aims only to imitate her.

The method of observation has a sure procedure; it gathers facts to compare them, and compares them to know them better. (Degérando [1800] 1969: 61–2)

He listed what he regarded as the faults of all previous attempts at ethnographic observation. They were incomplete, superficial and unsystematic. They were insufficiently verified. They were made out of context without regard for the interdependence of social facts. They were infected by analogies drawn from the observers’ own culture, which were not necessarily applicable to that under observation. They were conveyed in ambiguous language. The observations were made by strangers who, because they did not attempt in any way to become members of the society under observation, were likely to misunderstand it. Failing to take into effective consideration the language of the peoples visited, they were in consequence, unable to gain an understanding of the thinking of the people being observed (Degérando [1800] 1969: 64–70; Jones 1988; Moore 1969). Degérando then suggested an approach which emphasised the social and historical development of human society. It anticipated the sociology of Durkheim and Mauss in France, and in George Stocking’s view is of ‘more than antiquarian interest’ because of its ‘similarities to various currents of late-nineteenth century evolutionist social theory: the environmentalism, the sensationalist associationism, the social atomism, which are as characteristic of Herbert Spencer as of Degérando’ (Stocking 1968: 26).

Degérando who as a philosopher and scientist proposed an eclectic approach to understanding social phenomena, believed in a unified origin for the human race. He postulated that the savage existence was simply existence modified by geographical isolation in such a way that certain groups fell behind in the march of progress. There is ‘no hint’ of

“ethnographic bias” and no ‘concept of “race,”’ [or] any notion of permanent hereditary difference between groups of the human family. The word race appears only once in the Considerations, and then with reference to animals… The savage groups are always “peoples” or “nations”—never “races”; and their differences were environmental. In this Degérando was not completely representative… of the Observateurs. But he was perhaps representative of something broader: the optimistic
and embracive humanitarianism of the French Revolutionary tradition. (Stocking 1968: 28)

The two memoirs:

marked a milestone in the development of the nascent discipline of anthropology. In their areas of concern they represented two tides of ideas, one that of the philosophes of the “Classe des sciences morales et politiques” of the Institut, the fading fine light of the end of the eighteenth century; the other a precursor to the tradition of French medical anthropology and of the racial and typological preoccupations of the nineteenth century. (Jones 1988: 37)

Thus, the mission statement prepared for Nicholas Baudin by the savants of Société des observateurs de l’homme, was composed not by astronomers and geographers, setting out to observe natural phenomena or to chart as yet unmapped seas, as had been the case in earlier voyages, but by a biologist and a linguist. This is perhaps of some significance. One reason given for Cook’s death in Hawaii is that he violated (it is implied through ordinary ignorance) the symbolic relationship which had been endowed during the first voyage. Marie-Noëlle Bourguet writes:

Very often the seamen encountered islanders before they disembarked. Contact was established by gestures, signs, and exchanges of goods. Prudence was always necessary… Relations could take a dramatic turn: Cook was killed by the Hawaiians and his dismembered body offered in sacrifice in a sudden unleashing of violence that brutally reversed all the signs. When Cook turned back to the islands because his ship had suffered damages he unwittingly disturbed the symbolic system in which he had been inscribed during his first visit, when he had been welcomed as the sacred personification of the god of seasonal renewal. (Bourguet 1997: 279–80)

The effort by the French to launch a science based on processes designed to understand the complex structures of human groups, and unravel the meaning of the symbolic systems of ‘les naturals’, marked a significant episode in the history of the social sciences. It was Degérando who set down the rules governing the methods which the ‘philosophical traveller’ as this new scientist was called should use to facilitate ‘the proper study of man’ (Degérando [1800] 1969: 70)

These included the need to understand the language and ‘signs’ of ‘savages’ as well as to systematically observe their physical existence and social relationships. ‘It is a delusion’ he wrote,

to suppose that one can properly observe a people whom one cannot understand and with whom one cannot converse. The first means to the proper knowledge of the Savages, is to become after a fashion like one of them; and it is by learning their language that we shall become their fellow citizens. (Degérando [1800] 1969: 70)

It is also worthwhile to note here how ideas developing in one discipline impinged on those developing in others. The connection between medicine and education for instance was strong in the Société. After all, the Société was an association which fostered the multidisciplinary approach to knowledge and a belief that improvement in
one area of knowledge, no matter how small, was likely to impact on others in a significant way. As put by Cabanis:

Le moindre perfectionnement réel dans l’art le plus obscure rejaillit bientôt sur tous les autres; et les relations établies entre les différents objets des nos travaux, les font tous paricipiter aux progrès de chacun […] On voit, on sait, on démontre aujourd’hui qu’il est rien d’isole dans les travaux de l’homme: ils s’entrelacent, pour ainsi dire, comme les peuples dans leurs relations commerciales; ils s’entr’aident comme les individus unis les liens sociaux. (Cabanis, Coup d’œil [1795] 1956: 253, cited in Kilborne 1982: 81)

For the Deaf-Mute is also a Savage

It was such a frame of reference which allowed Degérando to write the following recommendation in his advice to the company which was about to embark on its journey to Australia:

We cannot recommend too strongly to the explorers of whom these reflections have been prepared, that they should become particularly acquainted with the methodical signs used so successfully by Citizen Sicard to establish his first communication with deaf-mutes. For the deaf-mute is also a Savage, and Nature is the only interpreter to translate for him the first lessons of his masters. However, it is important to notice that one must not expect that the gestures used have a comparable effect in the case of savage peoples; in fact, the meaning of these signs depends above all on the habits of those to whom one is speaking; these habits in turn are largely the effect of the circumstances in which they are situated. (Degérando [1800] 1969: 72)

Degérando’s environmentalism stands alongside Cuvier’s racial determinism and Pinel’s incipient psychiatric hereditarianism. The two tendencies—and the tensions between—environmentalism and hereditarianism, came early to Australian shores. The members of the Société des observateurs de l’homme embodied many of the attributes which were to characterize that group of enthusiasts and intellectuals who at the end of the nineteenth century became known as the Progressives in English-speaking countries:

They were emphatic… in their confidence in applied learning. Not only science in the specific sense, but any and every aspect of scholarship and enquiry could only justify itself through capacity for problem solving. The way of this was itself “scientific”: Progressives were ardent collectors of data concerning natural and human phenomena. (Roe 1984: 11)

Nearly all those who were in some way connected or went with Baudin were imbued with the same passion.

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3 Roughly translated as: The slightest real improvement in the most obscure art soon has repercussions on others, and the links and relations between the different works has a repercussion on the improvement of each of them. We notice, we know, and can prove nowadays that nothing is isolated in man’s creations: they intertwine so to speak, as peoples [nations] when dealing commercially: they work together as individuals who are united by social bonds [connections].
François Péron

However, Degérando never left France, and the man to whom goes the honour of naming and putting into action the new science, and of writing the history of the Baudin expedition, was an energetic twenty-two year-old partially-blind ex-soldier from a small town near Moulin in central France, called François Péron (1775–1810). A medical student at the Ecole de Sante, the Medical School of the University of Paris, recently renamed the Sorbonne, Péron had ‘supplemented his medical studies with work in zoology and comparative anatomy under Cuvier at the Muséum d’Histoire Naturelle’ (Stocking 1968: 31–4). Augmenting this with studies in languages and literature while attending classes in botany being given at the Jardin du Roi where Jussieu held court (Wallace 1984; Horner 1987; Jones 1988: 38–9; Laissus 1988). A man of great enthusiasm with a somewhat irascible and impetuous nature, his attachment to the Baudin expedition was, it seems, the result of personal misfortune rather than through a natural desire to go on a long and potentially dangerous sea voyage.

His medical studies had been enabled by the ‘kind support’ of a M. Pierre Petitjean, a wealthy lawyer in his own village of Cérilly. Péron had apparently fallen in love with Anne-Sophie, his patron’s daughter, and as the story goes, just after successfully completing his medical studies had asked her to marry him, and was refused. Since ‘Anne-Sophie “was an integral part of his plan to settle in Paris. She was an extra spur to his study”’ (Wallace 1984: 28). Although it is not clear, whether he asked and was refused, or ‘whether his courage failed him when he thought of the social disparity between him and his beloved. The authorities differ on this, but they agree that it was

A particularly accessible biography of Péron is that by Colin Wallace 1984. The Lost Australia of François Péron (London: Nottingham Court). See also Yves Laissus 1988. ‘François Péron: A biographical note’. In Baudin in Australian Waters edited by J. Bonnemains, E. Forsyth & B. Smith (Melbourne: Oxford University Press); Frank Horner 1987. The French Reconnaissance: Baudin in Australia, 1800–1803 (Melbourne: Melbourne University Press): 76–9. The ‘official’ account of the voyage is M. F. Péron 1809. Voyage de découvertes aux terres australes… (2 vols. [partially] Reprinted 1975, Melbourne: Marsh Walsh). Written by Péron and Henri de Freycinet between 1807 and 1816, the English translation of Vol. I was published as A Voyage of Discovery to the Southern Hemisphere in 1809. This account—which Horner claims to be not much more than a ‘sustained character assassination’ of Nicolas Baudin—highlights the extremely strained personal relationships between Baudin and his crew and between Baudin and his scientists, and the difficult physical conditions on board the Géographe. Péron could not bring himself to refer to his captain by name, referring to him only as ‘our commandant’, and Baudin’s journal reveals an equally hostile attitude to Péron. Péron in effect tried to write Baudin out of history, one of the reasons given by Dunmore and Horner for the neglect in Australia of sustained research into this important scientific enterprise. This lack is noted by Miranda Hughes in ‘Philosophical travellers at the ends of the earth: Baudin, Péron and the Tasmanians’. In R. W. Home 1988. Australian Science in the Making (Cambridge: Cambridge University Press). Hughes critically examines both Péron’s and Baudin’s anthropology, and argues that Péron’s approach to observation lacked a certain rigour when compared with that of Baudin.
because of the notary’s daughter that he turned his back on Paris and offered himself to Jussieu for the voyage of discovery to New Holland’ (Horner 1987: 77).

However, it seems that in order to secure this place, Péron penned an impressive ‘memoir’ which he sent to the professors of School of Medicine with a letter asking for their support for his appointment as an anthropologist. The memoir was titled Observations sur l’anthropologie, ou l’histoire de l’homme, la nécessité de s’occuper de l’avancement de cette science et l’impotance de l’admission sur la flotte du capitaine Baudin, d’un ou plusieurs naturalistes spécialement chargé des recherches à faire sur ce sujet (Observations on anthropology, or the natural history of man, the necessity of being occupied with the advancement of this science, and the importance of admitting to the fleet of Captain Baudin one or more naturalists specially charged with making researches to this end). He argued for, and ‘urged the importance of appointing “some young doctors with the study of man as their specific task’” and like Degérando and Cuvier, advised ‘a thorough study of the habits and customs of the peoples to be visited’ (cited in Moore 1969: 21). The memoir impressed both Cuvier and Jussieu and Péron was appointed, not to the position of anthropologist, for there was no such official position, but to that of zoologist, in which capacity he sailed with Baudin on 19 October, 1800.

A ‘Rousseausque’ Anthropologist

Though he went to Australia armed with Cuvier’s ‘racialist’ and hereditarian approach to comparative anatomy; and the instruction that he should collect skulls by any means possible, and Degérando’s command that he should make himself acquainted with the language of savage peoples that he met, plus the added task given him by Fleurieu, that he should collect enough specimens to create an ethnographic museum, Péron went to Australia with his own slant on research. His anthropology, originally indebted to the ideas of Rousseau, and allied to that of Cabanis, ultimately gives some acknowledgment to the importance of environmental factors in human development. While he lacked, according to Ernest Scott (1910: 175) the ‘large grasp, the fertile suggestiveness, of great scientific travellers like Humboldt, Darwin, and A. R. Wallace, he was curious, well informed, industrious, and sympathetic’ as well as being the first of the new profession to make any documentation of the ‘untutored races’ before the onslaught of European ‘civilization’ which would see their destruction. It may also be added that Péron lacked the life-span of the great nineteenth-century naturalists, 90 years, 90 years and 73 years respectively, and there is evidence in his writing, that had he lived longer he may have made a significant contribution to the field of social anthropology. Scott (1910: 254, 256) refers both to
Péron’s speculations on evolution, and rather coyly to the ‘curious investigation[s]’
that Péron made on the anatomy of the females of the Bushmen tribe at the Cape of
Good Hope. Highly original research which was not published until 1883.10

Péron supported the ‘Rousseausque’ notion that ‘savage man was superior in
health, strength, and general physical perfection to the civilized European’ and that this
physical advantage was gained at the expense of certain physical and moral qualities
(Stocking 1968: 31; Péron [1809] 1975: 312). The ‘savage’ supposedly lacked
feelings in both a physical and moral sense. ‘Could it be, he asked, that “moral
perfection must be in inverse ratio to physical perfection”?’ (Péron cited in Stocking
1968: 32). With this question in mind Péron proposed several investigations that he
could carry out in Australia which might answer this question, but, since his original
training had been in medicine, there was in all his proposals a strong hygienist element.
He wished, he wrote:

To ascertain their history… Their physical constitution; their customs; their manners,
their ornaments, their games, their dances; their exercises, rural and warlike; their
arms; their combats; their hunting and fishing parties; their prevailing maladies; their
habitations and clothing, and their navigation… (Péron [1809] 1975: vii)

He also wished to determine the existence of any diseases peculiar in the antipodean
land, and the methods used by the indigenous peoples to treat these diseases. He
reasoned that since savages were in such close contact with nature, and had been made

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10 Scott writes that ‘There is a technical note on this delicate subject in [Maurice] Girard’s F. Péron,
Naturaliste, Voyageur aux Terres Australes (Paris, 1857); a book which gives a good summary of
Péron’s scientific work’. The original work by Péron is titled ‘Sur le Tablier des Femmes
Hottentotes’ 1805, and was illustrated by Lesueur. The ‘tablier’ in this case refers to a ‘flounce’ or
‘apron’ of skin covering the external genitalia and giving the impression of an elongated appendage
variously thought to be a tail or penis. It was the subject of myth and intense curiosity by
European travellers, including [Lieutenant] James Cook, who at Cape Town on the return leg of his
first circumnavigation in 1771 ‘took the opportunity to investigate what he called “the great
question among natural historians, whether the women of this country have or have not that fleshy,
flap or apron called the Sinus Pudorus”’ (cited in Baker 1974: 314). Blumenbach was aware of
Cook’s observation, but it was not until members of this racial group appeared in Europe in the
first years of the nineteenth century that they came under the scrutiny of anatomists. Cuvier
examined in life and death (autopsy) a young women [Saartje Baartman]* known as the ‘La Vénus
Hottentote’ and wrote a paper (Extraits d’observations faites sur le cadavre d’une femme connue à
Paris et à Londres sous le nom de Vénus Hottentote, 1817, re-published 1824) which ‘confirmed the
accuracy of Péron’s and Lesueur’s unpublished account’, recognising that what was observed was
enlargement of the prepace of the clitoris and hypertrophy of the labia minora giving an impression
of a single organ. Sander Gilman (1985) does not mention Péron’s contribution to this research, but
does point out that the seemingly anomalous physical appearance of the genitalia of the Hottentot
came to be associated with pathology. The physiognomy and genitalia of the Hottentot woman
labelled her as inherently different. In the nineteenth century, he writes ‘the black female was widely
perceived as possessing not only a primitive sexual appetite but also the external signs of this
temperament—primitive genitalia’. Some were not averse to making comparison between the
organs of reproduction of the higher apes and blacks, and in extending the notion of ‘primitive’
sexuality to various forms of sexual expression within European societies, for instance to both
lesbianism and prostitution.

*After her death her remains were exhibited as museum pieces. In 2002 an effort was underway to
return these from France to the Republic of South Africa.
alert by their superior ‘instinct’, they would also be natural apothecaries, able to locate the substances necessary to treat their ailments; substances which might be worthy to add to the pharmacopoeia of Europe (Jones 1988). Most of all he wished to test the physical strength of the savage peoples he encountered, and he was able to do this by making use of a newly invented instrument, the dynamometer designed by the mechanical engineer Edme Régnier (1752–1825) (Fig. 11a).

**Regnier’s Dynamometer**

This instrument, which had been originally suggested by Buffon, is described by Paul Topinard (1830–1911) in his *Anthropology* (1890):

> It gives, at will, the force of pressure of the hands, and the force of vertical traction from below upwards, the two hands acting together in both cases; that is to say the manual strength and strength of the back of the loins, of authors. (Topinard 1890: 399)

Topinard adds that the instrument which was both portable and versatile, was used by the ‘traveller’ Péron, and also by ‘those of the *Novarra* in *Oceania*’ (Topinard 1890: 205).11

Of all the benefits which the apologists of man in a savage state have brought forward in his behalf, his physical strength is that on which they insist most particularly and constantly. As the constant attendant of a vigorous state of health, physical strength should be, in fact, one of the first claims to superiority, and if it were to be exclusive, or even most particular appendage of the savage state, civilization, it must be admitted, has deprived us of one of the most certain means of happiness. Hence detractors of social order have made the most eloquent declamations, to prove that this kind of degradation applies to civilized men, and they have striven to cause their sentiments to be believed. Till lately, however, we had no means of contradicting them, by not knowing how to compare with accuracy the physical strength of individuals and nations: but at the time of our departure from Europe, this branch of the history of mankind had excited the interest and zeal of philosophers.

The recent invention of the Dynamometer by Régnier, had just given a new turn to observations of this kind. (Péron [1809] 1975: 312)

When Péron made use of Régnier’s Dynamometer to study the strength of the so-called savages of Terre de Diémen, he became the ‘first trained anthropologist to enter into relations with Tasmania’s vanished race’ (Triebel 1949: 103; Triebel & Batt 1943; Hewes 1968). His experiments with the dynamometer also constituted ‘the first quantitative medical experiments undertaken in the young Colony’ (Pearn 1978: 168); and ‘the first quantitative ergonometric research experiment to be carried out in an ethnographic context’ (Jones 1988: 46).

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Fig. 11a. The dynamometer invented by Edme Régnier (1798) and used by François Péron in his Australian experiments. From the original engraving accompanying Régnier’s work Description et usage du dynamomètre. S.: position to test the muscular strength of the thighs. R.: the hand-grip position to test the force of the grasp. Reproduced from John Pearn, Ring the bell and win the cigar: Some early experiments on the measurement of human strength in Port Jackson and Van Diemen’s Land. Medical Journal of Australia 1978 2: 167–69.

**Table VI.**

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<tr>
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<th>Force des Mains</th>
<th>Force des Reins</th>
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<tr>
<td>1. Terre de Diémen</td>
<td>50.6</td>
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<tr>
<td>2. Nouvelle-Hollande</td>
<td>58.8</td>
<td>14.8</td>
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<tr>
<td>3. Timor</td>
<td>58.7</td>
<td>16.2</td>
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<tr>
<td>4. Français</td>
<td>69.2</td>
<td>22.1</td>
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<tr>
<td>5. Anglois</td>
<td>71.4</td>
<td>23.8</td>
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Fig. 11b. Summary of the mean muscular force of five groups of subjects tested by Péron.
In 1802 Péron took comparative measurements of physical strength of ‘these ferocious men’ at Maria Island, at Sydney Cove, on English soldiers in the service of Governor Philip Gidley King, on French sailors on board Le Géographe, and on the Malays of (Dutch) Timor (Fig. 11b). His results show that the ‘mean physical strength of each group of subjects… varied in direct relation to their position on the ladder of civilization’ and Péron was forced to acknowledge that his results ‘without being perfect’ disproved the view from Rousseau, that ‘the child of nature’ was ‘superior to man in a civilized state’. His ‘dynamometrical observations’ produced results that were directly ‘opposed to that dangerous opinion so generally promulgated and believed, that that the physical degeneration of man is in proportion to his state of civilization!’ (Péron [1809] 1975: 314. [emphasis in original]).

Significantly then, while employing the method appropriate to what Stocking (1968) calls the ‘emerging tradition’ of comparative physical anthropology, Péron nevertheless attributed the relative physical weakness of the ‘savages of Isle Maria’ to a severe life in severe environmental circumstances. Particularly the poor physical development of the upper body ‘the lank and feeble extremities’ of the Diemenese, and feebleness of the inhabitants of New Holland came to be explained as a consequence of poor food and the constant effort required to obtain this food from an unforgiving country (Peron [1809] 1975: 313).

Péron took a position very similar to that of Lamarck, befitting both his education as a hygienist and the philosophical concerns of the Société des observateurs de l’homme. He speculated that if the inhabitants were to dramatically change their lifestyle by setting aside their wandering habits, they would be relieved from the ‘cruel privations and excessive fatigues’ that marred their existence. A change of lifestyle would ‘soon see the constitution become more robust’ and ‘strength increase’ in such a way that in due course one [could] ‘see a future when this hideous emaciation must be replaced little by little by less slender and wasted forms’. ‘These happy changes’ Péron suggested, would ‘not be restricted to the individual alone. Society itself will not be long in sharing in the beneficial effects’ (Péron [1809] 1975; Plomley 1983; Jones 1988). Lamarck was familiar with Péron’s ideas and published a review of these

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12 Plomley (1983) argues that the action tested by the dynamometer was a particular muscular movement which ‘Europeans knew how to carry out and which their training had prepared them for, that is, it was culturally adapted’. It was, he argues, a strange action for an Aborigine to adopt, and their physical build was such that the manoeuvre was likely to produce the kind of results obtained by Péron; results which could then be used to support various arguments on the perceived physical and mental disparities between races. While there were faults in the method employed by Péron in measuring savage strength, which Péron himself acknowledged, this should not writes Jones (1988) responding to Plomley’s remarks, detract from the importance of Péron’s pathfinding anthropometric efforts.
in 1806, followed by his *Zoologie Philosophique* which was published in 1809 (Jones 1988).

**On the Method of Measurements**

Years later another group of European scientists would venture to the South Seas to engage in a comparative evaluation of races.

The Expedition of the Imperial Austrian Frigate *Novarra* entered Australian waters in 1858. Her scientists were on a round the world mission to ‘make a differential diagnosis of races’. The use of technology for the purposes of measurement is by then well-established and explicit for the task of both inter-racial and intra-racial assessment.13 While ‘Anatomists, Anthropologists, and travelling Naturalists’ had according to *Novarra*’s scientists, ‘come to consider measurements of the different

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13 See Karl Scherzer, PhD and Eduard Schwarz, MD 1859. *On Measurement as a Diagnostic Means for Distinguishing the Human Races*. (Privately printed Port Jackson [Sydney]): New South Wales Government Printer. ‘The unit of measurement is the French mètre, being now most generally in use for scientific labours. The unit of weight is the kilogramme. The instruments required are as follows:

1. A balance for weighing
2. Régnier’s Dynamometer
3. A measuring staff for taking the height of the individual
4. A plummet with a silk lace and a small mêtre-scale, for measuring the distance from the perpendicular and the nasal lines
5. Callipers
6. Measuring tape

A full account of the voyage of the *Novarra* is given in Carl von Scherzer’s *Reise der Oesterreichischen Fregatte Novarra um die arde, in den jahren 1857, 1858, unter den befehlen des Commodore B. von Wüllerstorf-Urbair.* (Voyage round the globe by frigate Novarra during the years 1857, 1858 under the Command of Commodore B. von Wüllerstor. [Vienna 1861–62]). In a letter sent from Trieste to the Rev. John Dunmore Lang of Sydney in 1860, Scherzer tells Lang that *Novarra* returned home safely after a ‘cruise lasting 849 days, out of which 551 days were spent at sea and 298 days on shore’. He adds : ‘Our different collections of objects of natural history… are considerable’ filling ‘more than a hundred large cases [which are] now about to be prepared, arranged and exhibited in the “Augarten”, one of the former Imperial summer-residences in Vienna.’

Lang (1799–1878) was a prominent and colourful figure in Australian colonial life, with wide-ranging interests in matters of religion, education, immigration, anthropology, journalism and politics. He agitated for and advanced the cause of republicanism and in 1850, with Henry Parkes and J. I. Wilshire, ‘founded the Australian League to encourage a sense of national identity, to resist further transportation and to promote, by moral means exclusively, the entire freedom of the Australian colonies and their incorporation into one political federation’ (ADB 1967: 76–83). In 1877 he published *Origin and Migration of the Polynesian People*.

Charles Darwin ‘was glad to see in the newspapers about the Austrian Expedition’; however, as he told Lyell, in correspondence, he hoped that the ‘scientific men’ had some influence over the choice of destinations: ‘It is my most deliberate conviction that nothing would aid more, Natural History, than the careful collecting and investigating *all the productions* of the most isolated islands of the southern hemisphere… If the expedition sticks to such places as Rio, Cape of Good Hope, Ceylon [Sri Lanka] and Australia, &c., it will not do much.’ (Darwin to Lyell, 11 February 1857, cited in Darwin 1888 [1969] 2: 93–4 [emphasis in original])
dimensions of the human body as a principal means of comparing the Normal Caucasian with the Normal Malay, Mongol, Papuan, New Zealander, Indian, &c.,’ such measurement has been lacking in detail, that is, they were ‘not sufficiently extended over the every part of the human body’ and for the purposes of scientific analysis were conducted on too small a scale (Scherzer & Schwarz 1858: 2). Deviance from the norm within a population could best be assessed by conducting measurements of a ‘great number of individuals of the same race’ (Scherzer & Schwarz 1858: 18).

Novarra scientists furnished four reasons for conducting their work: First, a thorough classification of races was needed in order to ‘fix the likeness of the present types of mankind’ before they were obliterated by the onslaught of both the physical and mental influence and superiority of the white race. Second, such an enterprise would ‘furnish comparative anatomy [with] a richer material for its important and valuable examinations, bringing all the races under its investigation. Third, to provide artists with the measurements which would enable them to ‘represent graphically the ideal figure of every single type’ and fourth, ‘to procure for the political economist such data on the muscular strength of different races, as might enable him to form a conjectural opinion on their productive power’ (Scherzer & Schwarz 1858: 18–19).

They tried as best they could to obtain information about the lifestyle, customs and language of the peoples they encountered on their scientific tour, and ‘attempted likewise to aquire as many skulls as possible for [our] anthropological purposes’ securing more than one hundred human skulls, while at the same time they acknowledged that their concern with the live specimen did not enable the kind of systematic analysis which a capable craniologist could produce, citing in their notes the work and ‘inestimable’ skull collection of the noted American physician Samuel Morton (1799–1851) as an exemplar in this area (Scherzer & Schwarz 1858: 20n; Gould 1978: 503–9).

Novarra scientists, Novarra anthropologists as they styled themselves, were in effect taking Condorcet’s admonition stated in his inaugural speech to the Académie Française and reiterated and reaffirmed in Esquisse, that:

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14 Morton, was a racial polygenist, described by Stephen J. Gould (1978: 503) as a ‘self-styled objective empiricist [who] set out to amass the world’s largest collection of skulls, representing all racial groups’. Beginning his collection in 1830 it exceeded 1000 specimens by the time he died in 1851. The collection was housed at the Academy of Natural Sciences (now the University of Philadelphia) where Morton was president from 1849 till his death. He published three major works on his collections. The lavishly illustrated and most famous Crania Americana or, A Comparative View of the Skulls of Various Aboriginal Nations of North and South America (Philadelphia, 1839), described by Topinard (1890) as ‘the best work of its kind’; followed by Crania Eegyptiana: Observations on Egyptian Ethnography, Derived from Anatomy, History, and the Monuments
Demonstrable progress of the natural sciences would equally occur in the social sciences if only they would use that same methods as the pure sciences... and base their conclusions on the observations of facts. (Condorcet [1795] 1955: 186, 190; Waldinger 1984: 117)

Novarra scientists were taking seriously Galton’s injunction that ‘whenever possible count’. They were also heir to the practice of precise sometimes brutal observation which was the hallmark of the new science of anthropology as it was first conceived by certain members of the Société des observateurs de l’homme.

The major change which had taken place since Condorcet’s time, and which was as one of the great legacies of the eighteenth century, was the successful transfer and application of quantitative methods to the social sciences. The measurement of perfection could now take place, because deviations from the norm within a normal population (which was the interest of the Novarra scientists) could be calculated with some exactitude. Deviation from a global ideal could also be calculated. So, obvious pre-determined assessments of wholeness (re-calling from Chapter 3 the etymological root of perfection from the Latin pericere, constructed from facere, to make, and per, which implies thoroughly: something is perfect when it is thoroughly made) or a lack there-of could be ‘scientifically’ confirmed. The presumed smaller intellectual capacity of females based on a smaller frame and skull size; the obvious differences between the races based on skin-colour, body-size and characteristics, such as between Europeans and the Bushmen of Africa, or the Aborigine of Australia. Putative physical and mental differences between the sane and insane; between the intellectually gifted and the intellectually retarded, even between rich and poor and between children and adults.

The progress of concepts in science, the means by which formally abstract ideas about development or progress or ‘normalcy’ could be measured, and confirmed or disconfirmed, was based to a certain extent on changes in the technology available to operationalise the hypotheses being tested. By the mid-nineteenth century the tools, the apparatus for doing the measuring had become available and were being widely used, both in physical anthropology and eventually in other ‘new’ sciences devoted to the study of humans as individuals and humans in groups; ‘sciences’ like psychology and sociology, along with anthropology. Ultimately this reliance on quantitative methods in the social sciences would become recognizable as part of the practice of those disciplines, at least in part. These sciences would represent a different kind of science than that for which Goethe and Carlyle had longed.

(Philadelphia, 1844) and ‘Observations on the size of the brain in various races’. In Proceedings of the Academy of Natural Sciences, Philadelphia, 4, 221 (1849).
JoAnne Brown (1991) writing of the development and use of quantitative methods in psychology in the early twentieth century endorses such a view. In an epigraph she cites J. M. Ziman’s (1968: 31) comment that “The familiar “method” of Science, whatever its logical and epistemological virtue, also has tremendous rhetorical power. If applied correctly, it has overwhelming persuasive force’ (Ziman 1968, cited in Brown 1991: 134 [emphasis in original]).

She goes on to explain with respect to mental testing in the early twentieth century (in America):

[The enterprise of measuring intelligence… carried into the realm of mental life the quantitative ethos that had come to dominate the older professions of medicine and engineering during the nineteenth century. Psychologists… organized their thinking about mental capacity, mental speed, and mental hygiene according to the evolving, increasingly statistical logic of medicine and engineering. By following, analogically, the methods of science as defined in these two better-established professions, scholars in the nascent field of psychology drew upon the prestige of medicine and engineering [in ways that are not entirely obvious]. Quantitative methods became in psychology a vocabulary with considerable persuasive force. (Brown 1991: 134 [emphasis in original]

Thus by 1860, at Port Jackson, this approach, the quantitative approach to the study of humanity was commended as one which might yield much useful quantitative information about the human body and at the same time ‘do honour to the human mind and its indefatigable striving for knowledge’ (Scherzer & Schwarz 1858: 3). While Port Jackson in 1860 was a place where scientific activity in a formal sense could best be described as being conducted on a ‘part-time’ basis, a number of established and persuasive philosophical assumptions, alighted in a society which was itself still strongly wedded, for very practical reasons, to the natural history tradition of the eighteenth century (Inkster & Todd 1988).15

15 The first duty of a new colony is to feed itself. However, Governor Hunter, as demonstrated by the material in his Historical Journal (1793) found time to make observations anthropological, ethnographic and botanical. He wrote of a ‘people’ he found ‘to be a lively and inquisitive race… rather small in their limbs but very active’ and described the vocabulary of aboriginal words being assembled by Mr. Collins, the judge-advocate for the colony, and noted that the ‘opossum’ of New South Wales was ‘not exactly like the American opossum’, rather, it was very similar to the kangaroo in that ‘it has a pouch, or false belly’; while the pines of Norfolk Island ‘which had been spoken of by Captain Cook’ grew ‘to a prodigious size…being from 150 to 200 feet, and in circumference from 12 to 14 feet, some to 28 and 30 feet’ (Hunter [1793] 1968: 37, 44–9, 133). Anne Mozley Moyal (1976: 2) notes that Australia was ‘a botanist’s paradise’ and that ‘despite scrutiny by the French, its scientific tradition grew up directly under the White Ensign and the personal patronage of Sir Joseph Banks’. A natural history bias remained strong in the early years, with a methodical emphasis on classification, description and taxonomy. A close relationship was built up between the diverse collectors ‘in situ’ while living at the periphery, and the hegemony of scientists located at the centre: ‘pioneering colonial psychology was inevitably linked with some intellectual abdication and the making over to Europe of the highest responsibilities of science. Yet the development of European theory relied heavily on the ‘solid background of observation which Australian observers supplied’ (Moyal 1976: 3). Moyal (1976) uses George Basalla’s [1967] model of scientific diffusion to demonstrate that this tendency diminished as the century progressed. Basalla suggested that colonial science developed in three stages. In Stage One, ‘Colonials’ provided fresh data for European science. In Stage Two, colonial scientists still provided data, but enlarged
Any notion about the status of aborigines, or for that matter ‘savages’ of any kind, had already been formed well before Darwin published *On the Origin of Species*; although Darwin’s work gave new impetus to the ‘rational’ study of life forms in the Pacific as ‘evolutionary theory was called upon to explain the survival through adaptation of certain organisms and races and the disappearance of others’ (MacLeod & Rehbock 1994: 5; Oldmeadow 1968).

The notion of vanishing races, was at one with current speculation about the progress of human society. The anthropologist Edward Burnett Tylor (1832–1917) was one who believed that cultures both past and present should be understood as part of a single history or ‘unitary law of development’ (van Keuran 1989: 30).

Civilization was defined by Tylor as the general improvement of mankind by the higher organization of the individual and of society, the functional equivalent of Herbert Spencer’s law of evolutionary development which cited progress as the movement from simplicity and homogeneity to complexity and heterogeneity. (van Keuren 1989: 30)

Aboriginal societies provided a mirror of European society in its earliest condition. Since ‘Ethnological theory argued that evolution in material technology recapitulated broader patterns of social evolution,’ the rush to document ‘primitive’ yet contemporary human society, fuelled the development of the ethnographic museum, as anthropologists sought to assemble the material evidence of human societies in their varying state of development, before they disappeared (van Keuran 1989: 26, 32–6).

The program of the *Novarra* scientists was created in this ‘heuristic’ environment. It upheld the ‘quantifying spirit’ that was a legacy of the eighteenth century (Frängsmyr et al. 1990). It fostered the comparative approach in social science encouraged by Cuvier and contemporaneously by Tylor, Spencer and others. It sought to advance the rules governing the practice of physical and cultural anthropology, as had been initially advanced by Degérando and Péron, and still acknowledged the tradition in which science served art.

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the scope of their interests and took increasing responsibility for both investigation and interpretation of this data, and in Stage Three colonial scientists set up their own scientific organizations and instituted their own ‘indigenous’ scientific research programs (see also Ian Inkster 1985. ‘Scientific enterprise and the colonial “Model”: Observations on Australian experience in historical context’. *Social Studies of Science*: 677–704). Moyal (1976) divides the scientific century conveniently into before [convict] transportation and after [convict] transportation, roughly before and after 1850, which date sees the beginning of not only a new prosperity for the young colony, but also a flowering of interest in science broadly speaking.
From Péron to Porteus

One writer (Turtle 1990; 1991) links Péron’s work with that of the famous Haddon Expedition to the Torres Strait in 1898, and with the work of the Australian ‘psychologist’ Stanley Porteus in the years before the Second World War. In both cases the need to provide comparative quantitative data prevailed:

The presence on the new continent and in Tasmania of numerous tribes of distinctive prompted… scientists both within and without Australia throughout the nineteenth century, to make comparisons of the physical, mental, and social attributes of this race with those of other colonized countries and of the colonizing Europeans, in an attempt to answer questions pertinent to the political and scientific cultures of the time. While by far the largest share of such investigation fell to the anthropologists, some of it, relating to the functioning of the individual… may properly be classed as psychological. (Turtle 1991: 7)

Turtle (1988) has also emphasised the early role which anthropometric measurement came to play in the context of Australasian education, which may be regarded as an extension of the instrumentalism which Inkster and Todd (1988) identify as a main theme in Australian scientific enterprise between the 1850s and 1900. They note for instance that in Australia ‘by the 1870s it was clear that the mood of the times had little patience for abstract theorizing’ (Inkster & Todd 1988: 113). While a book like *Origin of Species* which arrived in Sydney in 1860, ‘riveted attention’ and stimulated intense debate for twenty years or more, in the 1880s, it could still be forcefully argued by a politician, [when it came to a debate on funding for scientific research] “that if it didn’t effect the price of beef or mutton,” he wouldn’t “spend a shilling on it” (cited in Newell 1992: 12).16

However as Stephen Alomes (1993: 178) has written:

The Great Exhibitions of the 1870s and 1880s had demonstrated that Australia was part of the international technological “Progress” of the nineteenth century… Improved technology joined with urbanisation in challenging the bush ethos; the Suez Canal (1869) and the cable from London (1872) meant that news took a day and ships from Britain now took several weeks rather than several months… Faster ships allowed closer links with Britain; increasingly the rich sent their children off to study or to be “finished” at Oxford or Cambridge, or in London; struggling colonial authors were tempted by the audiences, status and income associated with the Imperial Centre, London; and British publishers sent out representatives and then established Australian branches devoted almost entirely to selling their British books.

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There was sufficient interest in the sciences in a broad sense to stimulate the library-building activities of a developing group of university-based educators, as well as small groups of men and women with an enthusiasm for knowledge and a stake in the successful development of the colony. They obtained the latest information about human development and hygiene from the books and journals which came off the presses of England, Europe and America. They joined small societies dedicated to the diffusion of knowledge and lobbied in support of the doctrine of social reform. Some were particularly zealous in their efforts. Such a one was Dr Alan Carroll, editor, anthropologist and baby-doctor, and a conduit for the latest ideas from abroad. The next chapter is dedicated to Carroll’s efforts to bring sociological, anthropological and psychological ideas to the Australian public in the decade preceding the outbreak of the Great War in 1914. Particularly it is shown how ideas were disseminated outside academic circles through his editorship of The Science of Man and the Journal of the Royal Anthropological Society of Australasia, thereby continuing the tradition of adult education established in the nineteenth century. In Chapter 9 an attempt is also made to extend the boundary of analysis beyond the Anglo-American and European context in which the study of the history of ideas so completely takes place. The inauguration of The Science of Man occurred at the same time as the formation of the American Philosophical Association (APA) in 1901. Which was a time when, as Lovejoy’s biographer Daniel Wilson points out, ‘professionalisation and specialisation’ became ‘increasingly characteristic of the academic disciplines in America’ (Wilson 1980: 86). Many of the meetings of the APA at this time were concerned with the issue of both the ‘scientific’ status and ‘scientific method’ of philosophy and on the necessity of promoting “‘intellectual fellowship and coöperation’” with those engaged in the much vaunted sciences (Wilson 1980: 86). Lovejoy was determinedly involved in these early meetings, and the issues of professionalization and the need particularly for cooperation among academics in the quest for knowledge, was to be a focus of the very substance of his version of the history of ideas (Wilson 1980). On a much smaller scale professionalization of disciplines was a factor in the development of these new sciences (as all the new disciplines aspired to be) in Australian universities, and the creation of a privileged knowledge based very much within the precincts of the universities and privileged group of ‘departmentalized minds’ (Lovejoy 1936: 22).
Chapter 9

Dr Alan Carroll and the Science of Man

Societies, similar to this, in other countries, do not confine their operations alone to savage or ancient peoples, but also direct their studies and investigations to what will conduce to the greatest advancements, the highest developments, or the fullest culture of their peoples, so as to prevent the race from degenerating, and to arrest by proper measures the progressive increase of crime, insanity, or organic and neurotic disease; and to prevent other forms of mental or bodily trouble arising from hereditary or acquired degeneracy. This society, through its officers, will take up this good work here, and will place themselves in intimate relations and alliance with the societies in America, Europe, and elsewhere, so as to obtain a knowledge of all that the societies in these countries are doing in such matters, and use it for the good of the people of Australasia.

Objects, Purposes and Proposed Operations

Focus of Chapter

In this chapter the link between the anthropological activities of la Société des observateurs l’homme and the activities of the entrepreneurial Dr Alan Carroll in late nineteenth century Sydney is made and explored. The link is made through the recognition of the role played by amateur scientists in the advancement of scientific and social-scientific knowledge during the nineteenth century. Specifically in this chapter this effort is shown at work at the geographic and by implication, the intellectual ‘periphery’. Recognising that the spirit of eclecticism which Lovejoy argued was essential for the promotion of the history of ideas the eclecticism demonstrated by Carroll during the 1890s is indicative of this spirit, and at the same time it may be seen to run counter to prevailing trends toward specialization and professionalization in all the disciplines with which Carroll was concerned, which included particularly anthropology, sociology and psychology. Carroll holds both ‘progressive’ and conservative points of view about human evolution, social improvement and human perfectibility. In the context of the time he is progressive on matters related to hygiene, nutrition and education yet also in the context of the time his amateur status precludes him and his ideas from scientific acceptance. The process of the destruction of the interdisciplinary approach, to that way of thinking is both personal and political. He is not accepted as a legitimate member of Australian Association for the Advancement of Science (AAAS). The demarcation of an official and unofficial more loosely defined form of scholarship located in the broader community was taking place. The location
of, the celebration and legitimacy of the search for knowledge in a broad interdisciplinary and methodically heuristic context which had been possible in the eighteenth century salon, the nineteenth century drawing-room, Mechanics’ Institutes and Working Men’s Clubs was now passing.

Dr Alan Carroll and the Science of Man

In June 1903, Dr Alan Carroll (1823–1911) (Fig. 12) was situated in Pitt Street Sydney in the office of an organization The Anthropological Society of Australasia, after 1900 known as the Royal Anthropological Society of Australasia, which he had founded in 1893 to promote anthropology. Its other stated aim was to press for the scientific study of human development and for this purpose an offshoot, the Laboratory Association of Australasia came into being, and concomitantly to further the cause the study of children in which Carroll had an life-long interest The Child Study Association of Australasia.1

Born Samuel Matthias Curl in London in the same year as A. R. Wallace, like Wallace, Carroll possessed a considerable fortune which allowed him to devote his life to travel and to ‘scientific pursuits’. His effusive obituary notice in the journal Science of Man for May 1911 notes that when he ‘first came to Australia his soldierly bearing, high-bred courtly manner immediately attracted attention’, these qualities being a combination of education and personal conduct, qualities which served as an immediate entry to the higher echelons of colonial society, a society which was eager to admit learned individuals from the Old Country to its ranks. Such was his style that ‘in an incredibly short space of time he was surrounded by statesmen—and many of the scientific and professional people of Sydney’.2 The Society which he founded was supported by all the Governors of all the states of Australia as well as those of Fiji, New Guinea and New Zealand; all the Premiers of the states were ‘vice-patrons’ and

1 Health and Longevity, According to the Theories of the Late Dr A. Carroll edited by Mrs. D. Izett was first published in 1915. It was published again in 1919, 1924, 1927 and 1937, and possibly in 1939. In the 1927 edition Mrs Izett recounts that the Royal Anthropological Society of Australia, was formed by Carroll in 1893 as the Anthropological Institute for Australasia. The Anthropological Society of Australasia was formed by Carroll and a few friends (according to McCall) at the Royal Exchange on 5 December, 1895.

Fig. 12. Portrait of Dr Alan Carroll.
Reproduced from *The Science of Man*, May 1911.
Courtesy of State Library of Victoria
Sydney’s leading citizens were actively supportive of the Society’s aims. The Society was awarded a grant of £150 a year from the State to pursue its activities.

Trained as a physician, reputedly under the famous surgeon Dr Astley Cooper (1778–1841) and partly in Berlin, ‘where he became deeply interested in the advanced systems of infantile medical treatment so solicitously encouraged by the German Government’, he was also exposed to psychology in Paris, where he spent time observing Freud’s teacher Jean Charcot (1825–93) the founder modern neurology and the pioneer of hypnotic suggestion. Carroll ‘walked the wards’, cultivating a specialty in child health, and through his travels in the Pacific, particularly in New Zealand, a lasting interest in indigenous peoples and culture. He arrived in Australia around 1885 (ADBB).

Although he ‘claimed’ qualifications, such as DSc., DLitt., PhD., it is not clear from which institution(s) these were obtained. He may not had these qualifications at all, and he was, it seems, never registered as a medical practitioner in New South Wales. In response to an enquiry regarding this matter, made in 1917 by the Organizing Secretary of the Child Study Association, Mrs D. Izett, the respondent wrote back in reply:

> It is true that Dr. Carroll did not register his name among duly qualified medical men of Australia; his reason given was that he came here for a rest and in the interests of Science and not to practice. (Izett 1927)

However the same author, a friend of 25 years, had arranged Carroll’s papers after his death, and was certain that he had seen papers for the degree of MD among these (Izett 1927).

Carroll’s efforts in Australia were exercised in the direction of three projects: anthropology, anthropometry and child study. In this he reflected a desire to be part of the world community of science, tackling issues of currency and relevance, in the period between the Boer War and the outbreak of the Great War, while at the same time alerting and wishing Australians to be intellectually abreast of the times. His peculiar style which may best be described as discursive, and is most evident in *Science of Man*, though much derided, is one which lent itself well to this task. However Carroll was also interested in other issues, beside ‘anthropology’ belonging to a number of organizations which advocated political and land reform.

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3 Sir Astley Cooper was a pioneer surgeon, who it is said ‘raised surgery from a primitive state to a science’. He wrote a number of medical texts including *Hernia* (1804–7), *Dislocations and Fractures* (1822), *Anatomy and Diseases of the Breast* (1829–40) and *Anatomy of the Thymus Gland* (1832). Much honoured, he was surgeon to George IV and vice-president of the Royal Society.
A problematical figure, Carroll was already perceived as ‘unorthodox’ by his closest associates and contemporary admirers; and has since been judged as eccentric, and dismissed as a ‘crank’ by at least one later academic (Roe 1984). He advocated what would now be called alternative therapies and preventive medicine. Others, have recognized that Carroll made a contribution to the ‘‘nature-nurture” debate in Australia’ and to the development of anthropology (Bacchi 1980a; McCall 1982).

He contributed his considerable energy and reformist zeal in the attempt to develop of a laboratory to promote anthropometric measurement, ‘where teachers and others’ interested in the welfare of children could learn the principles and methods of measurement, so that ‘defective’ children could be identified and rehabilitated (Bacchi 1980a; Turtle 1988). In doing so he was in the advance guard of those who championed the new applied psychology. Turtle (1988: 226) argues that while ‘anthropometry in its later stages came to include mental testing, chronologically it preceded the development of modern tools of mental measurement’, which tends to place Carroll as a precursor in the mainstream, rather than as an eccentric outsider concerned obsessively with child development and child health; which is where Grant McCall (1982) places him in relation to the development of anthropology in Australia.

As McCall (1982) and others note that while the Australasian Association for the Advancement of Science [AAAS, later known as ANZAAS] included a section on Anthropology from its inception in 1888, it was the almost forgotten Alan Carroll, who was the motive force behind the formation of the first society founded specifically for the promotion of anthropology in Australia.

Yet Carroll is also of interest because his concerns completely coincide with the turn-of-the-century emphasis on human improvement, and the advancement of knowledge, in all areas which could be defined as somehow ‘scientific’. This is shown by the title page of the first number of the *Australian Anthropological Journal* (Vol. 1, 1–6, August, 1896–May, 1897) which he founded in 1896 to promote anthropology, and which subsequently became known as *Science of Man And Australasian Anthropological Journal* the Official Organ of the Anthropological Society of Australia. (No 1, vol. 1. 21 Feb. 1898 [hereafter SOMJ]. The information on this page is indicative of what McCall (1982: 9) has referred to as Carroll’s ‘holistic in the extreme’ view of anthropology: his tendency, to view the new science of anthropology as reformist and all embracing.
The Journal of the Science of Man

The journal of which Carroll was director, manager and editor, accepted ‘Articles, Notices, and Communications in, and upon the Sections and Sub-sections’ of what he considered the ‘constituent parts of anthropology’ and this list of twenty-four sub-parts was published on the title page of each issue of SOMJ until it ceased publication in November 1913. The constituent parts of anthropology (here taken from SOMJ for 21Feb. 1898) were:


We should strongly recommend those interested in the dying out of the Australian blacks The journal was aimed at an educated lay public. Each issue of about eight pages was published monthly, and sold at ‘all Booksellers, Newsagents, and Railway Bookstalls in the colonies’. It contained some advertising for commercial enterprises such as opticians, furniture sellers and costumiers, like that for Mrs Pate, Corsettiere of George St., Sydney who was ‘Under Vice-Regal Patronage’, and for Durno—Pharmacist and Analyst, of Pitt Street, Sydney whose specialty was Prescription Dispensing. Most of these advertisements were modest in scale, except that for Rockdale College—A High Class School for Boys which occupied a full page on 1 January 1899, and advertised thereafter on a regular basis. Later issues contained advertisements for businesses making health foods.

The articles did not contain the ‘footnotes, bibliography and other scholarly paraphernalia’ associated with academic and scientific journals in the twentieth century (McCall 1982: 10). Carroll probably wrote most of the articles himself and scattered throughout are articles contributed by others, from Australia and overseas.4

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4 In each issue there was a summary of overseas journals which had arrived at the Society. Carol referred to these as ‘Exchanges’. For example, in SOMJ for 21 December, 1899, under the heading Matters of Interest in Our Exchanges, Carroll tells his readers that ‘we have received the Bulletin de la Societe D’Anthropologie de Lyon… the Scottish Geographical Magazine… the Proceedings of the Canadian Institute… and we find it contains articles upon “The Toronto Magnetic Observatory,” and upon “The Great Sunspot of September and October, 1898”… We have also received an account of the Proceedings of the Queensland branch of the Royal Geographical Society’. 
Carroll was in tune to the possibilities available to anthropology, and apart from the rather unusual manner of its presentation he contributed to the foundation of the discipline in Australia. Even before the first issue of SOMJ appeared, Carroll had already been contributing anthropological/ethnographic papers to local journals. In 1888 he published ‘Carved and painted rocks of Australia and their significance’ in the short-run Centennial Magazine. He was a frequent contributor to both The Sydney Quarterly Magazine and the Polynesian Society Journal. To the former he contributed ‘The Chinese difficulty’ in 1888 and ‘The movement of the races for the past seven thousand years’ in 1889. An article titled ‘The Australian blacks as known to science, and imagined by fanciful persons’ appeared in 1892, along with other articles on aborigines. To the latter he also contributed an article on ‘Easter Island inscriptions, and the way in which they are translated, or deciphered, and read,’ in the first issue of 1892.

The tradition continued in SOMJ, where he shared his interest in social sciences with his readers. Carroll was able to report that among the ‘exchanges’ received at the society in September 1907, was an ‘important pamphlet’ titled ‘Efforts made by Western Australia towards the Betterment of the Aborigines,” compiled from statistics, records, etc., by Daisy M. Bates, F.R.A.S., under the direction of the Register-General, 1907’. Carroll wrote in the half-page report devoted to Daisy Bates’s pamphlet:

We find that this pamphlet contains much useful information upon the efforts made by missions and other benevolent institutions to civilize and train the aboriginals by earnest men and women from the founding of the colony to the present time; but the result is the same always—some... have wandered off and left their training behind them, or in other cases so suffered with Nostalgia [melancholia] that they have quickly died.... We would strongly recommend those interested the dying out of the Australian blacks to obtain and read this little book with the attention it merits, as showing how, in spite of earnest efforts of the benevolent persons, the blacks are so rapidly disappearing. (SOMJ, 1 Oct. 1907: 156)

Carroll regarded anthropology as being of practical purpose, that is, it could be used to move and effect social policy.

In McCall’s (1982) opinion, Carroll [and Bates] was part of that phase in the history of Australian anthropology which just pre-dated the development of the discipline as a profession with strong attachment to the universities. Carroll was aware of this himself, for in February 1900 he had written an article for SOMJ titled

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Articles [sometimes appearing as partial reprints] from overseas were enthusiastically commented upon by Carroll and his readers, and were a source for debate of issues which remained potent for a decade or more. The August 1898 issue of SOMJ contains ‘Degeneracy’: and Discussions Thereon’, an examination of the writings of Nordau and Lombroso as discussed in English journals like the Alienist. Carroll is excited by the possibility that degenerative processes, the ‘signs and stigmata’ can be identified early and ‘recognized for the purposes of so treating and altering them’.
‘Anthropology and its present Progress and Position’ in which he compiled a long list of 72 lecturers in anthropology world-wide to show ‘how extensive are now the systematic teachings of Anthropology in European and American countries up to the present’. Included in his list were Tylor at Oxford, Haddon at Cambridge, Lombroso at Turin and Boas at Columbia University. He had also written that it was desirable that this trend should be fostered in Australia, and that it was his intention to encourage this through SOMJ. For Oldmeadow (1968: 69), SOMJ was one of two [the other being the establishment of the Anthropological Section at the first congress of the AAAS in 1888] ‘signposts’ in the growth of anthropology in Australia.

However, for others, Carroll’s efforts were those of a dilettante and scientific dabbler, whose involvement in Australian Anthropology is to be lamented. Mulvaney (1988) draws rather hostile attention to the fact that Carroll was the foundation president of Section G [Anthropology] at the inaugural meeting of AAAS in 1888.5

To judge from its title, his unpublished address skirted the lunatic fringe, “On movements of races from Asia to America and Australia.” Three of the eight paper readers were missionaries from Oceania, and the immediate future of the section rested with their gleanings. (Mulvaney 1988: 200)

In fact it was not until 1900 that ‘academics’, ‘those with relevant university degrees, including medical, where the subject is biological’, started to deliver papers in the Anthropological Section, and it was not until the 1920s and 1930s that academics supplanted missionaries as contributors in this section. (McCall 1982; see also Salter 1971)

Mulvaney (1988: 202) notes that SOMJ, although it today, ‘provides a quarry for useful facts and idiotic theories’ and was a ‘triumph of public relations’ in its time, ultimately failed to do what it set out to do, which was to ‘place the people of Australasia in touch with systematic anthropological research’. He further notes that no ‘named’ scholar contributed to the journal, and that the contribution of SOMJ to Anthropology in Australasia is inherently suspect since it ‘combined racism with Lamarckian sentiments and autocratic reformism’ illustrating this by quoting from SOMJ for 1 January 1912, the following: ‘While from Anthropology comes an exact

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5 The Australasian Association for the Advancement of Science (AAAS) was modelled on the British Association for the Advancement of Science (BAS) formed in 1831. The AAAS held its first meeting in Sydney, at the University of Sydney in 1888, and thereafter on an annual basis in every city of the six Australian colonies and New Zealand, with a break occurring during each of the two world wars. AAAS became ANZAAS in 1930. Following the model provided by the British Association the AAAS proceedings were organized into Sections, or subject divisions, which were to change their makeup as science changed its makeup over the next hundred years. The divisions for at the first meeting of AAAS were A—Astronomy, Physics, and Mechanics. B—Chemistry and Mineralogy, C—Geology and Palaeontology, D—Biology, E—Geography, F—Economic and Social Science, Statistics, G—Anthropology, H—Sanitary Science and Hygiene, I—Literature and Fine Arts, J—Architecture and Engineering (For details of sectional changes see Appendix 2: Sections of the AAAS (ANZAAS) in R. MacLeod 1988. The Commonwealth of Science (Melbourne: Oxford University Press): 365-68.)
explanation of the cause... If pauperism, crime, disease, dementia are increasing, then
the cause will be found, and the remedy proposed and provided.’ Mulvaney does not
put this in the psychological context of the pre-war period with its uncertainties, and the
wide-spread emphasis, even among intellectuals, of the threat of racial decay and
imminent war. Indeed Roe (1982) seems to castigate Carroll for his obsession with
impending Armageddon; and like Mulvaney scorns SOMJ as a ‘an extraordinary
compound of anthropological lore, racial mysticism, health reform, and hard-line
eugenics’ (Roe 1982: 158). However, Mulvaney was reading SOMJ in hindsight—not
allowing for the context of the times.

The Dissolution of Nations

Paul Fussell in The Great War and Modern Memory (1975) suggests that all through
the late nineteenth century there was a feeling of impending disaster. It is intimated in
Matthew Arnold’s enigmatic poem Dover Beach (1867) in which the mise-en-scène is
established in the opening lines:

The sea is calm to-night.
The tide is full, the moon lies fair
Upon the straits;—on the French coast the light
Gleams and is gone, the cliffs of England stand
Glimmering and vast, out in the tranquil bay.

And a possible, yet still equally mysterious denouement is suggested in the famous last
verse:

Ah, love, let us be true
To one another! for the world, which seems
To lie before us like a land of dreams,
So various, so beautiful, so new,
Hath really neither joy, nor love, nor light,
Nor certitude, nor peace, nor help for pain;
And we are here as on a darkling plain
Swept with confused alarms of struggle and flight,
Where ignorant armies clash by night.

Fussell comments that the volume Satires of Circumstance, published by Thomas
Hardy in November, 1914 is reviewed by Lytton Strachey in The New Statesman on 19
December, 1914, and that Strachey’s language is ‘dark’ and that he speaks ‘of events
remorseless, terrible, gruesome.’ However, Strachey is not writing about the war at all,
and that the poems ‘emanate from Hardy’s personal experience as far back as 1870’
(Fussell 1975: 3). Only one poem Men Who March Away is directly related to present
events. Others, like the ironically titled Channel Firing in which occupants of a seaside
cemetery mistake gunnery practice for the Day of Judgement are an ‘uncanny
foresight... of the war just beginning’.
And it does so by establishing a terrible irony as the appropriate interpretive means. Although in these poems the killer is tuberculosis rather than the machine gun, their ambience of mortal irony is one which, in the next four years [1914–1918] the British will become wholly familiar. (Fussell 1977: 3–4)

The poems associate a motif of individual destruction through disease, with the idea of a diseased national estate, a theme which in various ways was to resonate through the discussion of social ‘progress’ in the late nineteenth century.

Carroll caught this note of pessimism in ‘The dissolution of nations preventable’ published in the Sydney Quarterly Magazine in 1888. He muses about the cause of the ‘short-lived prosperity, and their decadence from their attained eminence’ of the great civilizations of the past, and seems to argue true to the tendency of the time, that the solution to the problem of national decline lay in the recognition that the ‘thing that more than any other contributes to the long continuance of an Empire, Kingdom, or State, is the ethnic element, or race that principally compose the mass of the population’ suggesting that the ‘stability of a nation depends upon the characteristics of race or races that principally compose it’ (Carroll 1888: 76). As usual Carroll seems to pursue a number of lines of thought similar to those of Darwin and his contemporaries. He argues that a knowledge of the factors that lead to national decline is one more reason to study anthropology. The imposition of a ‘practical anthropology’ will bring about a knowledge of the composition of races and racial characteristics that will allow for the best races to be identified and brought together in order to produce a harmonious nation. When racial peculiarities are allowed to hold sway over individuals, the good of the nation is in jeopardy. He argues:

Whenever the study of characteristics of different races is pursued and taught, as it should be, politicians, statesmen, and rulers will learn those things of each race, that constitute their own and other nations, with which they have to deal, and will then be able to make such provision to meet the peculiarities of these races, as will provide for the highest development of each nation being sustained, without the personal ambitions of individuals, being allowed to bring about the downfall of their nation, by endeavours to serve their own interests and ambitions. (Carroll 1888: 78–9)

Carroll is utopian. ‘Many forms of Republics, Monarchies, Empires, and Confederations have been tried’ he writes.

Possibly others more perfect may yet be discovered… and this will be brought about, whenever Anthropology assumes a practical form, and is so taught as to make clear to all properly educated persons what is best to encourage or suppress in the people of different races, constituting a nation, and to make provisions for all persons, in that nation contributing to its greatest advancement, and the greatest happiness and prosperity, may be secured to each family, and individual. (Carroll 1888: 79)

In the name of patriotism and in the name of ‘anthropology as a science’ he exhorts the Government of New South Wales to act.
The Race Problems

By 1899 the issue of racial composition or ‘good’ and ‘bad’ crossings is more urgently stated in the ‘The race problems’ in the August edition of SOMJ. First drawing attention to the fact that there is no such thing as an English race or a German race, and that they are but ‘nations’ composed of many races ‘all intermarried and mixed up in the most indiscriminate manner’; he then states that ‘If race means anything it means a pure unmixed stock coming down from ancient, or remote time, and it has certain anatomical peculiarities not found in other races…’ and that ‘no race ever changes until it is mixed with another race, and then, unless the mixing is continually repeated’. He is then able to move on and add a more eugenic slant when he suggests that:

When certain crosses of race find themselves in an environment suitable to them, they for long retain the family type, which was derived from the mixture of race… some races when intermarrying, produce a family type which is of a good kind, and other crossings do not; therefore the admission of certain people into a nation is to be guarded against… Some groups like the Chinese are not likely to intermarry with advantage. (SOMJ, 21 Aug. 1899: 119 [italics in original])

It is again the role of government to provide ‘contingencies’ to repatriate those who do not ‘amalgamate’ well. The example—of state intervention—he notes, had already been provided by those European nations who have shown ‘how much can be done with degenerate people to train them back to progress and prosperity’ and,

by the U.S.A., Canada, and the British colonies, where different people from different races are brought together and caused to advance to higher standards continuously by well planned authorities and government. (SOMJ, 21 Aug. 1899: 119)

Written at the height of anti-Chinese feeling, and leading up to the passing of an act in 1897 which ended Chinese immigration to Australia, Carroll’s article is but one of many—and not the most extreme— which contributed to the discussion of what would eventually be called the White Australia Policy. Indeed another utopian, William Lane, the radical editor of the weekly magazine the Boomerang; the man who went on to establish a ‘New Australia’, a racially pure socialist enclave in Paraguay in 1893; was much more virulent in his attack on those who he saw as a threat to the fabric of Australian society (Webb & Enstice 1998).

What was different, in Carroll’s writing compared to that of the journalist Lane, was his use of the idea of ‘expertness’ and appeal to science to legitimise popular perceptions of social and political development in the colony. In ‘The Chinese difficulty’ written for the Sydney Quarterly Magazine in the centenary year 1888, (the same year that Lane published his White or Yellow?: A Story of the Race War of AD 1908) he drew attention to the potential hazard to the survival of the Australian state in
the wake of perceived threats from abroad, generally sensed at the time as coming not only from China, in the form of unrestrained immigration, but also as Russian territorial expansion. He argues that most people judge the Chinese by essentially external factors, and that the relevant issues could only be properly appreciated by one ‘educated’ in ethnology.

Carroll here demonstrates, a point made by Rob Watts when he states that ‘Societies like ours cannot be understood without reference to the impact on the contours of social experience wrought by the modern professions’ (Watts 1994: 324). Although he seems not to have been part of the Australian academic establishment, the whole point about Carroll’s work is that as an educated man he attempted to grasp at and harness that which was new in the social sciences, in the service of his vision of a country which he hoped would be able to ‘hold an equal elevation and prominent place in future with other nationalities’ (SOMJ, 21 Nov. 1900: 173).

The Coming of the Laboratory

The context in which Alan Carroll tried to establish a psychological laboratory in Australia is complex. It is a period which marked the end of the perceived certainties of the mid-Victorian era, and witnessed the beginnings of the uncertainties of the new century. It was also a time of change for the professions as new disciplines arose and new trends in scientific investigation took hold.

It was also a time when the call went out for ‘efficiency’ which Searle (1971) has identified as a major ‘catchcry’ of that era; one to be likened to that of ‘Modernization’ in the 1960s; and perhaps, ‘globalization’ in the 1990s. It was a term, like all catchcries, in which was embodied all the ‘hopes and fears of the hour, though in a maddeningly imprecise way’ (Searle 1971: 1). It was a cry born of England’s realization, during Gladstone’s Liberal administration, that economically and politically she was gradually losing the ‘singularity of her position’ to other nations, like France and Germany.

As early as 1851 during the Great Exhibition Prince Albert had identified the problem, and in a memorandum to the Commissioners for the Great Exhibition wrote that France and Germany were ‘continually economizing and perfecting production by the application of science’ (Searle 1971: 13). Albert called for improvements in technical education, which while ignored at the time, was taken up after the ‘poor showing’ by Britain at the Paris Exhibition of 1869. A concurrent economic depression helped to foster the opinion that state intervention in science and technical
education might be a good idea if the country was to compete successfully with the newly industrializing nations of Europe.

The inauguration of the journal *Nature* in 1867 under the editorship of William Lockyer, stimulated the notion of the usefulness of science in fostering social progress, and provided a very effective forum for scientists to exchange ideas about improvements in higher education. Since many of these scientists had studied in Germany at some stage in their career, and most had had of necessity to avail themselves of German laboratory facilities in the absence of such facilities in Britain, it was to the German model which practitioners in all areas were wont to turn (Haines IV, 1958). *Nature* engaged in a ‘long campaign to promote scientific research and education’ during the 1870s, with Lockyer singing the praises of the Germans, attributing the Prussian success in warfare to their ability to think scientifically (Haines IV, 1958: 218).

It was the perception that England’s status as a great trading nation could be destroyed by countries in Continental Europe, which prompted the House of Commons to appoint of a committee to investigate technical education abroad. This initiative was supported by other investigations of Continental schooling, like the one carried out by the poet Matthew Arnold, in his role as a member of the Education Commission in 1868 (Haines IV, 1958).6

Between 1870 and 1887, when a National Association for the Promotion of Technical Education was formed, there were numerous government inquires and study tours to the Continent by concerned parliamentarians and industrialists. The old universities of Oxford and Cambridge came in for particular, often vitriolic criticism. Their meagre scientific research activities and lack-lustre teaching program were unfavourably compared to those encountered at the universities of Leipsig, Heidelberg, and Berlin, which according to one interested party, possessed

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6 Matthew Arnold spent thirty-five years from 1851 earning a living as one of Her Majesty’s Inspector of Schools. In this capacity he was enjoined to report on the condition of working-class [elementary] schools in England, the only ones at this time supported by the state. This resulted in a number of *Reports* to government notably for 1852, 1869 and 1880, as well as other writings on education. He was also commissioned by the government to examine the education systems of various European countries, which resulted in the publication of *The Popular Education of France* (1861), *A French Eton or Middle-Class Education and the State* (1863–64) and *Universities and Schools of the Continent* (1868). Arnold believed that the chief role of the elementary school was to civilise and refine or ‘Christianise’, there being little scope for promoting [particularly literary] ‘culture’ among the very poor, who were struggling simply to survive the rigours of their physical conditions. For this reason he was particularly concerned with improving the built environment of schools as a means of affecting social improvement (see Imelda Palmer 1979. *Matthew Arnold: Culture, Society and Education* (South Melbourne: Macmillan); P. J. Keating 1975. ‘Arnold’s social and political thought’. In Kenneth Allott ed. *Writers and their Background: Matthew Arnold* (London: G. Bell & Sons): 207–23; and Gillian Sutherland, ed. 1973. *Matthew Arnold on Education* (Harmondsworth: Penguin Books).
‘laboratories and museums on a palatial scale, and a perfect army of investigators and students supported by State endowment’ (Haines IV, 1958: 225).\footnote{This was Henry Enfield Roscoe, then professor of chemistry at Manchester University. See p. 123n.}

What was encouraged in the German university was the application of experimental methods to scientific problems overseen by professors expert in their individual fields. Degrees were awarded for original research. This was not the case in England where teaching:

was almost wholly theoretical, with occasional demonstrations, or if devoted at all to “practical work” [not required for a degree], took place in one of the very few teaching laboratories, which were cramped and poorly equipped. (Haines IV, 1958: 229)

It was not until the late 1870s that some real change took place, when laboratories influenced by German example and employing German instructors started to appear at Oxford, Cambridge and London University (Haines IV, 1958); and, in what has been called ‘a golden age for new academic buildings’ the first technical college, with extensive laboratory facilities, The Finsbury Technical College in London was completed in 1883 (Brock 1989: 155).

‘Subjects suitable for laboratory study’ were increasing in number, and while chemistry had always been studied in a laboratory of some description, including in ‘chemical amusement chests’ and ‘cheap portable laboratories’ aimed at the amateur and the young enthusiast, by the end of the century physics in particular, as well as physiology and psychology, became philosophically as well as physically located in the laboratory in its modern guise (James 1989: 3; Gee 1989: 47).

**First Psychology Laboratories in Europe and America**

In 1879 in a small class-room attached to what had originally been a dining hall at the University of Leipsig, Wilhelm Wundt (1832–1920) created the ‘first working research laboratory explicitly devoted to experimental psychology’ (Fancher 1996: 160; Bringmann et al. 1980). By 1892 the founder of scientific psychology, moved his one-room laboratory to eleven rooms in another building which had previously been a gynaecological clinic, and in 1897 his *Psychologisches Institut* or ‘Institute for Experimental Psychology’ moved again into a purpose built facility, where experiments were conducted into human psychophysical functioning [experiments into sensation and perception, reaction-time and attention]. This facility remained intact until destroyed during the Second World War (Bringmann et al. 1980). The research findings of the *Institut* were published in the journal *Philosophische Studien*
(Philosophical Studies) which Wundt founded in 1881. It was the first journal to devote itself entirely to the ‘new’ experimental psychology; although it was not the first psychological journal, which honour must go to Mind founded in 1876 by the Scottish philosopher-psychologist Alexander Bain (Boring 1929).8

Wundt attracted students from Europe and America. Particularly, there were a number of eager Americans who studied with Wundt, and they returned with an ‘enthusiasm for laboratory psychology and a commitment to psychological research’ which greatly influenced the development of psychology in the universities of their country (Thorne & Henley 1992: 165). Two in particular, Granville Stanley Hall (1844–1924) and James McKeen Cattell made major contributions to applied psychology in the field of education.

G. S. Hall, a dynamic figure in the making of American Psychology, studied in Wundt’s laboratory for a brief period in 1879. It was his second visit to Germany, the first in 1868–71. A self-proclaimed ‘enthusiast for Darwin, Spencer, and Huxley’ and for Emerson and Carlyle, he had already gained a PhD degree from Harvard University where he was supervised by the ‘founder’ of American psychology William James (1842–1910) (Thorne & Henley 1992: 165).

At Leipsig, Hall served as an experimental test subject with two other students in the mathematician Max Friedrich’s doctoral dissertation on the measurement of apperception time for simple and complex visual stimuli, completed in 1880, which was the first psychology doctorate coming out of Wundt’s laboratory (Behrens 1980).

Hall returned to America in 1879. Significantly just before he came home he had:

finally decided that neither psychology or philosophy would ever make bread and that the most promising line of work would be to study the application of psychology to education. With this in view… I spent the last months of this period in travel and in visiting schools. (Hall 1923: 215)

Somewhat at a loose end on his return, and hoping that something might turn up he later recalled:

One Wednesday morning President Eliot [of Harvard] rode up to the house, rapped on the door without dismounting from his horse, and asked me to begin Saturday of that week a course of lectures on education in Bumstead Hall, Bromfield St., Boston, under the auspices of Harvard… There were to be twelve lectures and the fee was five dollars. I think nearly three hundred tickets were sold… In President Eliot’s introduction of me he stated that Harvard had never been much impressed by pedagogy but I was a young man who has studied it abroad and this course had been

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8 Wundt had originally intended to call his journal Psychological Studies, but changed the name after he found out that there was already a journal called Psychologische Studien which was devoted to articles on parapsychology and spiritism (see Bringmann, Bringmann & Ungerer 1980).
instituted as an experiment. In concluding he invited the audience to decide whether Harvard was right in ignoring it or I was right in advocating it. It was of course, a tremendous stimulus. (Hall 1923: 216)

In effect this was the beginning of Hall’s serious involvement with child study.

Wundt’s first laboratory assistant in the experiments carried out in the new laboratory was a young American PhD student called James McKeen Cattell. Cattell, who earned his PhD in 1886, supervised by Wundt, designed his own apparatus to carry out his experiments, and he was unusual in that he was also interested in ‘individual differences’ which Wundt apparently regarded as a peculiar American concern. However, it was an interest Cattell pursued on his return to America, where as Professor of Psychology at the University of Pennsylvania (1888–91) he founded a laboratory and began to administer a series of ten ‘mental tests and measurements’ to student volunteers, arguing that such tests would be of considerable value when their use was extended to the larger community; suggesting that ‘individuals besides would find their tests interesting, and, perhaps, useful in regard to training, mode of life or indication of disease’ (Cattell 1890: 373; Fancher [1979] 1997; Thorne & Henley 1997). He noted that Francis Galton had already applied some of these tests at his Anthropometric Laboratory at the South Kensington Museum, and hoped that the series as presented would meet with Galton’s approval. Cattell had spent time in Galton’s laboratory after leaving Wundt and Leipsig in 1886, describing the Englishman as ‘the greatest man who I have known’ and believing as did Galton that the measurement of individual differences would become a most fertile field for research in the field of psychology (Woodworth 1947: 3).

Cattell continued to apply his mental tests to new students at his next post at Columbia University, and others were encouraged by this work to test Cattell’s (and Galton’s) ‘assumption that measures of physical and sensory ability were assessing intelligence’ (Thorne & Henley 1997: 263). One such researcher, Stella Emily Sharp, a doctoral student at Cornell University, in 1898 compared the work of Binet with that of Cattell to investigate the usefulness of ‘mental anthropometry’ (Sokal 1982). However, it was one of Cattell’s own post-graduate students, Clark Wissler, who in 1901:

dealt a fatal blow to these mental tests by showing that sensorimotor tests of the type employed by Galton and Cattell were highly unreliable and worse, showed little or no correlation with other measures of intelligence, such as teachers’ estimates of

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9 The ten tests were: 1. Dynamometer Pressure. 2. Rate of Movement. 3. Sensation Areas. 4. Pressure causing Pain. 5. Least Noticeable difference in Weight. 6. Reaction-time for Sound. 7. Time for naming Colours. 8. Bi-section for a 50 cm line. 9. Judgement of 10 seconds time. 10. Number of Letters remembered on once Hearing.
examinees’ intellectual level. (Murphy & Davidshofer 1994: 209; Thorne & Henley 1997)

In 1905 Cattell’s psychophysical tests were superseded by a scale measuring general intelligence designed by Alfred Binet and Théodore Simon. Cattell stopped his tests but continued to design means of ranking individuals by merit. Like Galton, Cattell was interested in applying the ‘new psychology’ of experiment to assessing differences in individual capacity.10 As ‘a self-proclaimed disciple of Galton’ Cattell wrote in his unpublished biography, it might be hypothesized that ‘lines of descent of superior intellect and character may be bred’ and:

In that case we shall need data regarding families of all kinds. If we record the position of the stars for possible future use, it is at least equally desirable to collect authentic facts concerning individuals and families. (Cattell 1936 cited in Sokal 1971: 630)

The Laboratory Association of Australasia

The kind of laboratory that Alan Carroll envisioned for Australia was close in intention to that designed by Galton in 1884. Galton’s laboratory originally focussed on anthropometric or physical measurement in the service of eugenic research (Galton 1882; Galton 1885; Galton 1890; Galton 1908: 244–57; Cowan 1972). Using instruments he designed himself, Galton tested for Keenness of Sight; Colour-sense; Judgement of Eye; Hearing; Highest Audible Note; Breathing Power; Strength of Pull and Squeeze; Swiftness of Blow; Span of Arms; Height, standing and sitting; and Weight. He wrote that his aim of ‘periodic measurement’ was ‘two-fold, personal and statistical. The one to show the progress of the individual; the other that of portions of the nation, or the nation as a whole’ (Galton 1885: 213). Carroll’s efforts were similarly directed.

Originally located in temporary offices at 30 Hunter Street, Sydney, the Laboratory Association, for Anthropometrical, Psychological, and Psychiatrical Investigations (Fig. 13), was described by Carroll as a ‘collateral body’ ‘branching off’ from the Royal Anthropological Society of Australasia. The ‘special work’ of the Association was the measuring, testing, and educating the defective, deficient, and degenerate, children and adults’ so that they ‘may no longer grow up into incapables, or to become immoral, delinquent, or injurious to the others, who are honest and capable citizens of all classes’ (SOMJ, 22 Feb., 1900). Carroll recognized the effect of both hereditary and environmental influences on the development of the young, and had a strong faith in education–believing that the right education might overcome early developmental

PROSPECTUS OF

The Laboratory Association of Australasia.

For Anthropometrical or Physical Measurements; Psychological or Mental Tests; and Psychiatric or Mental Degenerations. Or Examinations and Investigations to Discover and Reform the Defective, Deficients, and Degenerates.

The following Twenty Items show the Desirability of Actively Promoting this Institution:—

1. In all the highest civilized countries such laboratories are in active operation.
2. It is proposed to establish an Association in Australia to take up this work.
3. To raise funds to provide such a laboratory wherein to carry on the investigations.
4. Immorality, intemperance, insanity, and crime are increasing continually.
5. Other means and efforts have failed to check and bring these conditions to an end.
6. It is now proposed to produce reforms by these most efficient means.
7. Young children grow up into degenerate or imperfect men and women.
8. Those, if examined and their defects discovered, could be trained into worthy citizens.
9. If allowed to grow up without recognition and suitable training, many will grow into inca pacables, intemperate, lunatics, or delinquents.
10. Therefore, it is unfair to the children not to give them a chance to be trained aright.
11. As other countries have attended to this, why not Australians also? If Sydney, as the chief city of the mother colony, should be the centre for commencing this work.
12. Without these reforms are at once commenced, the next generation will show more degenerates. All who wish well to the people of Australasia will assist this movement.
13. It is therefore proposed to enrol members for this Association at £1 1s. per annum.
14. Also to obtain donations from benevolent persons.
15. All monies so obtained will be spent upon providing and furnishing the laboratory with apparatus.
16. Children may then be there properly measured and tested, etc.
17. Classes will there be formed and taught, so as to carry on the investigations in all parts of Australasia.
18. School teachers and others, will be instructed how to train for reformation.
19. Lectures and demonstrations will be given, so as to teach fathers and mothers how to train their children.
20. By these means degeneration can be arrested and reforms effected.
problems whatever their cause. The purpose of physical and psychological measurement was to detect deviations from the ‘normal type’ at an early age and early stage. The role of education was to correct the faults found. Carroll stressed both often, through the pages of *SOMJ* throughout the late 1890s and early 1900s:

> In connection with anthropometry there should be psychological examinations carefully carried out, that the special senses and the mental powers may be tested as to the normal or abnormal conditions of either of these… In Australia very great need exists that such examinations should be introduced… because of the very different climate and environment which surrounds the people from the British islands who have emigrated to this country where very different circumstances prevail and environ them. Any observer must notice how very different the first, second, and the third generation born in Australia are from the British ancestors here; and therefore with these great changes going on in the body and mind, come the great importance of discovering at the earliest moment any deterioration, or abnormality, or degeneracy, that the proper steps may be taken to rectify or remove any harmful changes, which present themselves. (*SOMJ*, 22 March 1900: 30)

**The Ideal Human Type**

While Carroll was among the earliest of the Australian proponents of measuring the young, he was not the only one to promote this means of assessing the state of Australia’s national efficiency. Thomas Coghlan, Government Statistician of New South Wales was according to his own reckoning the first in 1901–2 to conduct a state sponsored anthropometric survey, although Carroll argued (*SOMJ* 22 Feb. 1902) that it was largely through the efforts of the *Laboratory Association* that government took up anthropometric testing at all.

Coghlan’s report to Section G. (Economics and Social Science) of the AAAS presented the results of the measurements of 2000 Sydney children ‘representative of the various social grades’ made in 1901. His aim was an intra-racial comparison of the youth of New South Wales at a time there was some interest in the notion that the health of the caucasian population of Australia was potentially compromised by exposure to the peculiar conditions inherent in colonial life; a theme which Goghlan noted had already been discussed at earlier meetings of the Australian Association [for the Advancement of Science] (Coghlan 1902; Cawte 1986).

Indeed, this was a prominent theme at the time, and was to remain so in the years to come, particularly among eugenicists. Twelve years earlier, the psychiatrist Chisholm Ross (1889) had made similar statements in ‘Race and Insanity in New South Wales, 1878–1887’, a paper read before the *Intercolonial Medical Congress of Australasia,*
in which he presented a comparative study of the rates of insanity among the ‘race’ of ‘Australasians’, that is, those born in the colony of European parentage.\footnote{Ross (1889: 850) wrote: ‘a constantly recurring source of variation in making any statement in connection with the “Australasian Nationality,” is found in its marked hybridity’. This paper was followed by one given by F. N. Manning titled ‘Insanity in Australian Aborigines, with a brief analysis of thirty-two cases’. ‘The influence of a tropical climate on Europeans’ by J. H. F. Kohlbrugge was published in \textit{The Eugenics Review} in 1911–12 and typically argued that the nature of a tropical climate was such that Europeans invariably were adversely affected. Europeans suffered physically and became ‘restless’ whereas: ‘The native in his natural state did not show this irritability, but if he is “educated” to the same degree as ourselves, and if his intellectual life is as intense as our own, he suffers as much, if not considerably more. The inference is that a tropical climate induces a certain intellectual indolence, and that any work carried out with European energy very soon causes neurasthenia… The natives who have not been under the influence of our civilisation can suffer the greatest pain without a murmur’ (Kohlbrugge 1911–12: 11).}

Coghlan also argued that children were closest to the ‘source of social and national life’ and that it was still possible to rectify mental and physical defects in the child ‘whereas similar shortcomings and peculiarities of the adult are beyond remedy’ (Coghlan 1902: 542). He continued with his belief that:

\begin{quote}
the object of all worthy educational systems is the most symmetrical development of individual minds and bodies, and training our future citizens, so that they may approximate as nearly as possible the ideal human type. (Coghlan 1902: 542-3)
\end{quote}

It was hoped that the ‘deviation of normal growth’ and the evil effects of ‘over-study or insufficient nourishment, or lack of exercise, or even of unhappy temperament may be detected and intelligently combated’ (Coghlan 1902: 543). The methods of measurement were in accordance with British and American practice. The measurers included Dr Brennand, Dr Mabel Graham and Dr Mary Booth, the latter noted for her feminism, patriotism and in later years her efforts to raise ‘funds for a publication, \textit{The Boy Settler}, as a means of maintaining the purity of the British stock in Australia and combating communism’ (Kirk & Twigg 1994: 25). Both Dr Brennand and Dr Booth took part in meetings of the Child Study Association.

However, as Alison Turtle (1990: 136) notes, Carroll’s [and Coghlan’s] ‘hopeful attitude to remedial treatment’ through education, was not entirely shared by the medical profession. ‘Mental deficiency’ she writes ‘was initially claimed as their province’ and they increasingly supported, if only in print, methods to control the ‘number of hereditarily unfit born into the population’; a view supported by Stephen Garton who nevertheless writes that, Australian psychiatrists were willing to entertain the idea of environmental influences as a factor in the aetiology of developmental deviations (Turtle 1990: 136; Garton 1988; 1994: 25–6). However, Australian educators and politicians were slow to implement their preference for special schools for the ‘feeble-minded’ until the end of the decade. The first school opened to cater to the needs of feebleminded children was the Bell Street Special School in the inner
Melbourne suburb of Fitzroy in Victoria in 1911–12 (Lewis 1987, 1989; Turtle 1988, 1990). Bell Street was notable as its first headmaster and guiding spirit was the ‘ambitious’ and internationally known psychologist Stanley David Porteus (1883–1972) the originator of the novel Porteus Maze Test. Lewis (1989: 131) argues that his ‘humanitarian’ approach to the education of the feebleminded appeared to be in ‘stark contrast to the harsh hereditarian’ approaches of his local contemporaries while his ideas, as expressed in his writings were wholly in keeping with the ‘social-cleansing attitudes and hopes’ expressed by both British and American psychometrists.

Carroll’s own efforts to establish a formal laboratory with suitable instruments foundered. Not for want of trying. Fundraising drives were a regular feature of the Association as it tried to enthuse its readership about the usefulness of psychometric evaluation.

In July 1902 he wrote that it had been ten years since he started urging the public of the necessity of ‘attending to the defectives and the deficients’ and promoting specially devised training to bring them up to a level of those of average or normal conditions’.

He was still arguing for a laboratory like that used in Britain by Francis Galton, a ‘laboratory furnished with instruments and apparatus of the best kinds’ and particularly, he proposed:

a reform of the education system. [where] Instead of so much of subjective lessons from books, there should be more objective lessons, with “Sloyd” manual training, and methodical muscular movements and exercises. (SOMJ, 21 July 1902: 90)

Training the Senses

Carroll reiterated this the following year noting that in earlier issues of SOMJ attention had been directed ‘to the great necessity for a reform in teaching in Australia, for the present plans and methods… permit many deficient children to grow up, without detection of their abnormalities’ and that:

The present mode… regards and teach all children alike, as though their characters were all the same, whereas in reality all children differ… Physically and mentally no two children are exactly alike, and therefore, the peculiar characteristics of each child must be attended to… (SOMJ, 21 Feb. 1903: 3 [emphasis in original])

He argued that ‘the brain after birth continued to develop in a regular manner’ and faulty training adversely affected the development of the nervous system, potentially leading to permanent damage.

The systems of education which he proposed, were those which accentuated physical stimulation of the nervous system:
The various proposed reforms in teaching the young as the Fröbel’s kindergarten system, the Swedish Sloyd, the British and American manual training and others, all attempt to substitute objective teachings for subjective lessons from books. The chief good of these is by training the senses and by promoting conscious perceptions to respond by reflexes and willed impulses to motions from the motor centres and regions of the brain and spinal chord, thus promoting healthy actions… (SOMJ, 21 Feb. 1903: 3 [emphasis in original])

Carroll seems to be interested, or at least intuitively aware of, through his promotion of slöjd and the teachings of Fröbel, the rudiments of developmental neuropsychology, an area of neuro-science which in 1900 was in its most unformed state (Kolb & Wishaw 1980: 127).12 Carroll is aware of the role which motor activity plays in the process of human, and particularly child development, especially as it affects the learning process. He is also aware of the role played by environment in determining learning and behavioural outcomes.

While this is not unusual for an Australian at that time, this awareness almost appears to link Carroll’s ideas to those behind Harry Harlow’s 1950s experiments [at the University of Wisconsin] on sensory deprivation in newborn monkey’s; and to later twentieth century work on ‘brain’s ability to change its structure and function’ (the concept of ‘brain plasticity’) and particularly the role played by experience as a ‘major stimulant of brain plasticity’ (Kolb & Wishaw 1989: 43, 58–60).13

Carroll, in advocating Uno Cygnaeus’s slöyd and significantly Friedrich Fröbel’s method, one which strongly emphasised ‘education through self-activity’ and play as a stimulus to total physical and spiritual development, draws our attention to this overlooked aspect of Carroll’s work.14

12 The term neuropsychology first appeared as part of the title of a book The Organization of Behavior: A Neuropsychological Theory. published in 1949 by the Canadian psychologist Donald Hebb. While he did not define or use the term in his book, Hebb a cognitive neuroscientist with an interest in memory ‘brilliantly advanced association learning theory by proposing that individual cells could, by being activated at the same time, come to form cell assemblies that formed the structure in which memory was housed’ (see B. Kolb & I. Q. Wishaw 1980, Fundamentals of Human Neuropsychology (New York: W. H. Freeman) especially chap. 7. Hebb’s hypothesis was confirmed in 1973 when Timothy Bliss and Terje Lømo measured the voltage in one neural pathway in the brain of a rabbit, then sent repeated bursts of electricity down the path, and afterward found that the pathway carried a higher voltage than before. The synapses had been strengthened by the electrical impulses. The implication was that that is what happens in learning (Hunt 1993: 520).


14 Uno Cygnaeus (1810–88). Finnish educator, who pioneered the reform of the Finnish primary school system with the introduction of a curriculum which focussed on handwork such as that advocated by Fröbel, and which he extended to include farmwork, horticulture, basket-making, metal and woodwork, known collectively as ‘slöyd’ or ‘handiwork’. Slöyd became compulsory for boys generally, and as part of the training for male teachers in Finland in 1866. Its methods were easily taken up in countries beyond Finland.

Friedrich Fröbel (1782–1852). German educator and philosopher and founder of an infant school in Blankenburg, Prussia called the Child Nurture and Activity Institute which he subsequently renamed
Frœbel’s Teaching

Frœbel’s teaching was both evolutionary and strongly developmental (Bowen 1892). He wrote in Menschenerziehung (The education of man) published in 1826:

The form of man’s life should not be regarded as an immutable fact but as a constant and progressive process of becoming, a continuous advance towards an infinite goal from one stage of growth to another… Each successive generation and each successive individual should go through the entire pattern of earlier human development—as does in fact happen—otherwise past and present would be incomprehensible. (Frœbel [1826] 1967: 58)

He further asserted:

At every age a person’s only aim should be to fulfil the needs of the particular stage of his existence, and then he will try to meet its special demands. Satisfactory development at any one period can be achieved only if there has been fulfilment at the earlier levels of growth. (Frœbel [1826] 1967: 64)

His evolutionism makes use the idea that ‘ontogeny recapitulates phylogeny’: that the growth of the embryo repeats past stages in the evolution of the race; an idea later reflected in Spencer’s belief that social evolution is marked by increasing complexity of structure marked by a trend from homogeneity (simplicity) to heterogeneity (complexity) (Bowler [1983] 1989a). It was an idea that was incorporated into the educational psychology of C. Stanley Hall but which was not original with him.

Frœbel’s developmentalism already seems a forerunner of Jean Piaget’s identification of the qualitative and quantitative ‘stages of development’ which children pass through at different ages (Fancher 1996). At the same time, Frœbel ([1826] 1967: 50) held that the aim of education was ‘the realisation of a life which is true to its calling’ and its purpose to ‘develop man’s essential nature… and make him consciously accept and freely realise the divine power which activates him’ a sentiment very close to that expressed in the ‘self-actualization’ theory expounded by the American psychologist Abraham Maslow (1908–70) and popular within the humanist tradition in psychology dominant in the mid 20th century, a tradition with its roots in European romanticism.

Rather ambiguously, Carroll’s promotion of Frœbelian educational principles with its mystical and religious underpinning is made in tandem with the promotion of methods like craniometry and anthropometry. This, along with his support for
alternative approaches to therapy, might warrant Michael Roe calling Carroll a ‘somewhat strange man’ for indeed this combination seems unusual at a time when the sciences in general, but particularly medicine and especially psychiatry, were drawing strength from a belief in the physical basis of mental processes and the non-psychological origin of mental disorder (Clark 1981).

Exemplary Children of the Enlightenment

Yet Rob Watts (1994) argues in respect to the eugenicism of scientists, intellectuals and public spirited individuals in early twentieth century Australia:

If the enthusiasms of eugenicists were scientific, rational and technical on the one hand, they could also be mystical and uplifting on the other. As exemplary children of the Enlightenment, “science” was the god of daylight, and its application to the solution of any number of social and political problems their main ambition. Yet they knew about and were unafraid to confront the “dark and vital forces” of human lives. (Watts 1994: 324)

Michael Roe also writes of ‘modernism’s ambiguous duality of rationalism and mysticism’ even among those who were concerned like his ‘progressives’ with everyday politics and ‘other immediate realities’; some of whom repudiated the Christian tradition yet harboured a passion for the supernatural (Roe 1984: 2).

Watts holds—although like Roe he is speaking in the main of the inter-war period—that those, including amateurs like Alan Carroll, who espoused eugenic views, were ‘integ rally linked’ to the development of the “new professions” and the promotion of the modernising project generally’ (Watts 1994: 321). While this did not necessarily mean that those who espoused views consistent with ‘modernism’ ‘progresivism’ or ‘reformism’ uniformly supported all aspects of this project.

Sir Charles Mackeller the multi-faceted—he was a medical man, businessman and politician—social reformer in the area of child welfare in New South Wales, was a ‘staunch environmentalist’; yet in 1917 he co-wrote with Dr D. A. Welsh a ‘eugenically inspired’ book which suggested measures to segregate the mentally deficient (Garton 1986: 21; MacKeller & Welsh 1917). Dr Welsh in his contribution to this work titled ‘The Danger of Feeble-mindedness to the Individual, to the State, and to the Race’ contended:

It is possible that some strains of mental deficiency might be “bred out of the race” by judicious mating with sound strains, so that mental enfeeblement would no longer be obvious in the descendants. (MacKeller & Welsh 1917: 13)
While eugenicism seems to weave like a ribbon through much discussion of the betterment of society at this time, this discussion is nevertheless a corollary of social reform generally, particularly in the areas of health and education.

And, while many authors (Bacchi 1980b; Roe 1984; Garton 1994; Watts 1994) seem to stress that support for female suffrage was part and parcel of this program, Dr Carroll was not a feminist. His attitude was:

There will be grave dangers to avoid… upon handing to one-half the population a power unknown and not well in its consequences understood. We see even now that men… have been led by their emotions and sentimental fancies into voting for, and passing of socialistic legislation that has already done great harm… and we may expect that the greater emotional and romantic natures of women that they may be led into false and mischievous proposals by propounders of foolish and dangerous procedures. (*SOMJ* Feb 21 1903: 4)

However, like G. Stanley Hall he called on women to organize to implement his program for social change. His approach was in fact remarkably similar to that of Hall, whose female followers were comforted by his traditionalist view of women’s role (Ross 1972).

Old-fashioned he might seem in this respect, yet his concern for the reform of education and his interest in the issue of ‘hygiene’ give him a place among better known Australian social reformers of the early twentieth century.  

The Child Study Association of Australasia

Carroll’s ceaseless emphasis on educational reform, of ‘Nation Forming by Training Children’ (*SOMJ*, 23 April 1900) his advocacy of very specific types of education like manual training, plus his advocacy on behalf of anthropometry is entwined with his obsession with alleviating the suffering of children.

Carroll is straightforward enough about child study as it is described in the ‘preliminary syllabus’ for “‘The Child Study Association” of Australasia’ as recollected by Mrs D. Izett in the five-times published *Health and Longevity* (1915, 1919, 1924, 1927, 1937). In the 1927 edition she writes that ‘the objects of the Association were stated as follows:

The Child Study Association has been formed for the purpose of furthering a wider and better knowledge of children and child nature, and suggesting improved methods for their development and education.

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15 Like Charles Mackeller and Richard Arthur.
16 See Chapter 9, Note 1.
It had for its objects:

1. To form Branches and Child Study Round Tables in the various suburbs, where parents, teachers and those interested in children may meet to discuss subjects bearing upon the health, development and better education of the child. Also for the collecting of data upon lines suggested by the Advisory Board.

2. The establishing of a laboratory where children may be measured, tested and graded for the benefit of those interested in their education and general fitness for life’s purpose.

3. The founding of a school for defective and deficient children.

In *SOMJ* for 21 February, 1901 in a four-column article headed ‘Child-Study’ Carroll writes:

During recent years much has been written upon “child-study,” by which term is understood the studying of children as to learn their characteristics that they may be trained and taught according to their peculiarities and requirements. Child-study is carried out by two distinct methods. First, the study of children by their parents, teachers, or others, to learn their peculiarities, characteristics, dispositions; that is, by carefully observing their sayings, doings, etc. Secondly, the scientific study of children by specialists or experts, using anthropometrical and psychological apparatus and methods, so as not only to learn exact procedures and physical and mental peculiarities of each child at as an early age as possible, so as to correct any abnormalities found, but to likewise test the growth and development of the children at regular intervals, so as to learn whether they are growing, evolving or developing in a normal manner.

This follows the tenets of Child-study as it originated in the United States in 1894 under the enthusiastic leadership of G. Stanley Hall, and in 1896 in England under the direction of James Sully a psychologist with an interest in acquisition of language; although, as Hall’s biographer Dorothy Ross (1972) notes, the methods which Hall adopted—for example, the use of questionnaires to ascertain children’s’ knowledge and experience of the world—had already been tried in German schools as early as 1869 and 1874.

**Questionnaire Studies**

In Sydney Carroll tried to draw as many ‘helpers’ as he could to the movement. The fee for membership of the Association in Australia was ‘five shillings per annum, so that all, even the poorest’ might ‘join and assist in its operations’. The public program in Sydney, was not dissimilar to that in Boston, taking the form of discussion groups or ‘round tables’, and both Carroll and Hall conscripted women to the cause of carrying it out. Hall recalled that ‘Many mothers’ clubs were formed and women’s clubs took up the theme, and The Mothers’ Congress and various parent and teacher associations endeavoured to advance certain phases of it’ (Hall 1923: 393; Ross 1972). In both cities there was also a formal structure for this study with Hall
conducting his academic research at Clark and G. H. Knibbs at the University of Sydney.\textsuperscript{17}

Hall began a systematic program of questionnaire studies at Clark University in 1894–95, when he mailed out to eight hundred correspondents a series of fifteen printed of questionnaires which ‘asked about the fundamental nature of the child’\textsuperscript{18}

This investigation, which has been described by Sheldon White (1990) as extremely ‘awkward and clumsy’ by the standards of contemporary [that is, by the standards of the latter part of the twentieth century] research methods in developmental psychology, lasted until 1918. Hall acknowledged this when he wrote in his biography:

of course studies of this sort have their grave defects of method. We always strove to recognize that they were only preliminary or first stages… and little finality should be claimed for our conclusions save in those cases involving physical measurements. We had abundant occasion, too, to realize that very often a little experience in this study opened the eyes of parents and teachers to the nature and needs of childhood in an almost revolutionary way. There were, of course, many critics. Professor Münsterberg repeatedly declared that he would love his children but never study them, as if the two were inversely related while we believed we had overwhelming evidence that to know a child better is to love it more… Even Darwin gathered a very large part of his data by a modified questionnaire method through his very wide correspondence with observers, skilled and unskilled, in all parts of the world. (Hall 1923: 391–92)\textsuperscript{19}
Indeed Hall managed to send his questionnaires all over the world, his efforts resulting in data collected from as near as Canada, England and Germany, and as far as South Africa, India, Australia, China and Japan (Hall 1923). His assistant Dr. Theodate L. Smith ‘undertook to gather data for a handbook of all child study and child welfare institutions the world over with a view to the eventual preparation of an encyclopedia on this subject’ (Hall 1923: 393).

This activity peaked in 1904 when twenty-two questionnaires were sent out, and ended when Hall lost interest in child-study after the publication in 1904 of his ‘magnum opus’ Adolescence: Its Psychology, and its Relations to Physiology, Anthropology, Sociology, Sex, Crime, Religion and Education.

Carroll is referring to Hall’s work early in 1900. In SOMJ, 1 February 1911, there is an article by G. Stanley Hall, President of Clark University called the ‘Children’s Institute’ which is probably a partial reprint of an article listed in the bibliography to Hall’s biography as appearing in Harper’s March, 1910. Vol. 120, pp. 620–24.

In its original guise according to Mrs Izett (1927), The Child Study Association confined its activities mainly to the reading of papers. The lectures for the year ending June 1903, were:

- The Necessity and Value of Child-Study—Dr. Reuter E. Roth.
- Our Highly-Strung Children—Dr. Agnes Bennett.
- The Child’s Mind—Dr. W.m. Quafe.
- What are “Defectives and Deficients”?—Dr. Brennand.
- The Child and Its Demands—Mr Arthur Giles.
- Our Unbalanced Folk—Dr. Flashman
- On the Teaching of Practical and Infant Hygiene—Dr. Mary Booth
- Child Study in Other Countries—Mr G. H. Knibbs and Mr J. W. Turner.
- An Important Age in a Child’s Life: What to Do and What to Avoid—Dr Chisholm Ross.

The inclusion in this list of notable speakers like Dr Mary Booth, Dr Chisholm Ross, and Mr G. H. Knibbs indicates that Carroll was keen to obtain the ideas of those active in social reform in New South Wales at the time. However, of as much interest is the inclusion of others not so prominent, but who were active either in the pursuit of science, or as participants in the child-study round table and other philanthropic groups which he, Mrs Carroll and Mrs Izett actively promoted.
The Second Child Study Association

In 1904 Carroll severed his ties with the first Child Study Association, and formed a second organization bearing the same name. The first Child Study Association became the Kindergarten Union of New South Wales and eventually took the name of KU Children’s Services on 2 December, 1991. The second Child Study Association maintained this name, although it was variously called the Dr Carroll Child Study Association (1913), The Child Study and Adult Health Association of Australia (1914) and the Sydney Child Study Association (1916). At the last publication of *Health and Longevity* it was known as The Child Study Association of Australia. As well as the office located in the city, Carroll work from his home *Eblana* in Bondi Road, Waverley (Izett 1927).

Staffed by Dr Carroll, Mrs [Annie] Carroll, Mrs Izett, and after his death in 1911, with the assistance of a Council, The Child Study Association in this form was, from 1906, a self-confessed humanitarian enterprise, which:

Among the multiplicity of societies and benevolent bodies… had been carrying on its work steadily, and unostentatiously… rescuing from the grave or the living death of hopeless, crippled lives, little suffering children—the “incurables” of the hospitals, the “forlorn hopes” of humanity. It was not wholly a charitable Association, but it treated the poor as cheaply as it could, and the needy for nothing, as far as funds allowed. (Izett 1927: 314)

In the *SOMJ* from this period there is an urgency, a heightened emotional tone in the language used as a means to gain public attention and much needed funds. One ‘Appeal’ in April 1908, headed ‘The Cry of the Children: An Open Letter to the Fathers and Mothers of Sydney’, informs of the appalling death rate of children under six, a lax government ‘paying to bring out migrants, and letting our native-born Australians die’ and imploring the reader to support him in his effort by observing a clinic in action, on the 1st and 3rd Fridays of the month at the Whitefield Institute, 393 Pitt Street [Sydney] or by ‘sending a donation if you cannot see the work for yourselves’. An indelible impression of urgency is created by the inclusion of the following poem in the advertisement:

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20 The clinic had various locations around Sydney. Carroll according to a report printed in *Science of Man*, October 1908 headed ‘Studying the Children: A Child Lover’s Efforts’, notes that he had been: ‘active in curative work among children about three years, first in Sydney and Redfern, then in Petersham, finally in Sydney, where meetings are held every Friday. All classes of children are treated. No child is refused. Dr Carroll and all officers work gratuitously for the love of the children alone. The only stipulation more understood than made is that well-to-do parents will devote toward the dietary cure of the poorer class’. An interesting aspect of this article is that it reports Carroll’s desire for a laboratory with delicate instruments ‘necessary for the cure of the children’ costing some £1000, which included ‘the Finsen light apparatus’. Phototherapy is the use of light in the treatment of skin diseases. The technique was invented by the Danish physician Niels Ryberg Finsen (1860–1904) for which he was awarded the Nobel Prize for Medicine in 1903. Finsen’s light as referred to by Carroll is the use of phototherapy in the treatment of jaundice in the newborn.
Do you hear the children crying, oh my brothers:
Do you hear their tiny wailings—father, mother?
They are calling from the darkness—they are groping after light.
Will you help them, and in helping bless each other;
They are babies of the Slumland, dark and dreary—
A father dead—a mother weary;
They are kith and kin of yours; they are His children,
Just like ours and He loves these suffering babies just as dearly;
But they sob their little eyes out,
Would you hear them?
Too often with no gentle touch to cheer them
They are falling by the way, they are dying everyday;
They are calling you. Ah, listen, and you’ll hear them.

Carroll’s interest in child development at this time moved away from education per se, and is focussed almost exclusively on the need to improve the nutritional standards of young Australians, and particularly those of the poor, those who inhabited ‘Slumland’. Particularly, his method is based on the premise that while he recognized that:

By heredity, parental neglect or ignorance, or the fault of nature, a large percentage of children are born with mental or physical defects. In the majority of cases feeding of mother or infant, either before or after birth, is the prime cause… (“Sunday Times,” 1906 cited in Izett 1927: 315)

and it was these defects which his system aimed to remedy ‘not by the knife, but by proper feeding in accordance with Nature’ (Izett 1927: 315).

Although Roe (1984) is dismissive of Carroll’s concern and self-styled therapeutic efforts, Milton Lewis (1982) has shown that high infant morbidity and mortality caused by poor and under-nutrition was a major concern to many lay and professional hygienists in Sydney at the turn of the century. They were equally desirous of other efforts to improve conditions of urban life, such as the clearing of that ‘notorious’ slum area called the Rocks (Lewis 1982).

Lewis (1982) also writes of the worrying practice of feeding infants diluted condensed milk as a substitute for breast milk, and the high incidence of ricketts and diarrhoeal disease consequent on the consumption of inappropriate and often adulterated foods. For Dr Carroll feeding an infant in accordance with the requirements of nature meant breast feeding, and the avoidance of what would now be called processed foods. Along with others, he believed that breast milk provided protection against infection; and admonished Australian women for failing to suckle their young (SOMJ, 20 March 1908; Bacchi 1980b; Lewis 1982; see also Powles 1988 for a discussion of the development of ‘sanitary science’ in Australia).

Carroll’s concern with the high infant mortality rate, had as its corollary, a belief in the imminent dilution of the vitality of the native-born ‘white’ Australian; an idea
shared by many who feared that a declining birthrate would lead to the ‘loss of European control of the continent’ and social and political instability; a serious enough matter in the 1890s to led in 1903–4 to a Royal Commission on the decline of the Birth-Rate. Therefore, behind the humanitarian intentions, though they were genuine, lay the fear of annihilation, of what eugenicists called ‘race suicide’ and conquest by foreign powers.

The Demise of the Science of Man

Although Carroll, espoused some idiosyncratic ideas about why certain foods were harmful; and had overly high hopes for dietary cures for serious diseases, his pronouncement that the essentially British cold-climate diet of Australians comprising copious amounts of red meat, sugar, and white bread was potentially unhealthy had some merit. The ‘Child Study Diet’ which was the first step (along with spinal massage) in restoring the suffering little ones to health, consisted of a ‘dietary scale’ based on ‘pure milk, wholemeal bread, fruit (including raisins and currents), vegetables, eggs, fish, and white meats generally. This diet would transform the ‘deformed neurotic, or deficient’ to health and vigour.

The last issue of Science of Man appeared significantly enough in November, 1913, the month of the publication of Hardy’s Satires of Circumstance. On 28 June 1914 Archduke Frances Ferdinand of Austria was assassinated by a Serbian nationalist, setting in train events that would lead in August of that year to the outbreak of the Great War. Mrs Izett wrote in post-war editions of Health and Longevity of the dreadful losses suffered by Australians in battle during the Great War. Equally, she wrote of the almost equal number of infant lives lost at the same time due to ‘the neglect of health’ (Izett 1927: 20).

It cannot be doubted that Alan Carroll believed in science and progress, and that he was a humanitarian:

It is stated that so deeply had his life’s hobby possessed him that during his last few days his advice and treatment restored to despairing parents five children in the last stages of consuming diseases, and that he literally died in harness, inditing a prescription while the faculty of recollection still remained in him. (SOMJ 1 May 1911: 4)21

There can be no doubt that Mrs Izett believed in ‘science’ as interpreted by the baby doctor of Bondi, and that she supported the progressivist ideal. She quotes President Roosevelt’s declaration that ‘Our national health is physically our greatest national asset. To preserve the national vigor should be a matter of patriotism’ in support of her

claim that this ideal was in accordance with Dr Carroll’s activities and goals (Izett 1927: 115).

However there was equally an opinion, well expressed by Beatrice Webb in 1926, that the new century had put paid to the utopian sentiment which had become attached to science in the nineteenth century. The disappointment was already being captured at the time in the sad refrain enunciated by Huxley in *Evolution and Ethics* ([1888] 1989: [44] 102):

> That man, as a “political animal,” is susceptible of a vast amount of improvement, by education, by instruction, and by the application of his intelligence to the adaptation of the conditions of life to his higher needs, I entertain not he slightest doubt. But so long as he remains liable to error, intellectual and moral; so long as he is compelled to be perpetually on guard against cosmic forces, whose ends are not his ends, without and within himself; so long as the recognition of his intellectual limitations forces him to acknowledge his incapacity to penetrate the mystery of existence; the prospect of attaining untroubled happiness, or of a state which can, even remotely, deserve the title of perfection, appears to me to be as misleading an illusion as ever was dangled before the eyes of poor humanity. And there have been many of them.

Webb wrote in her biography: that ‘two idols of mind’ had been “united” in the mid-Victorian trend of thought and feeling. There was a current of belief in the scientific method… And added to this belief in science was the consciousness of a new motive; the transference of the emotion of self-sacrificing service from God to man…

She continued summing up her thinking thus:

In these latter days of deep disillusionment, now that we have learnt, by the bitter experience of the Great War, to what vile uses the methods and results of science may be put, when these are inspired and directed by brutal instinct and base motive, it is hard to understand the naïve belief of most original minds of the ’seventies and ’eighties that it was by science, and by science alone, that all human misery would be ultimately swept away. (Webb [1926] 1979: 130)

In 1795 Nicolas Condorcet in *Esquisse* that ‘paragon of all presentations of ideas on progress’ predicted that in the Tenth Epoch, in the ‘coming millennium’ science and technology would come to the aid of humanity. All social ills, spiritual dilemmas and moral and physical frailties would disappear through the application of rational and scientific principles to all aspects of human existence. Such was the promise inherent in the application of science, ‘the golden avenue to the future’ that it seemed only reasonable to suggest that the ‘perfection of the human species might be capable of indefinite progress’. Recalling that within four years Thomas Malthus had scoffed at the notion, chiding it as both ‘unphilosophical’ and ‘totally unwarranted by appearances’; it may also be observed that between 1790s and the 1880s, the period to which Beatrice Webb nostalgically refers, efforts to apply the principles of science to
the ‘possible improvement of the human breed’ was advanced with an enthusiasm such that it excited the imagination of scientists and lay-people alike.
Chapter 10

Conclusion

But though the history of ideas is a history of trial-and-error, even the errors illuminate the peculiar nature, the cravings, the endowments, and the limitations of the creature that falls into them, as well as the logic of the problems in reflection upon which they have arisen; and they may further serve to remind us that the ruling modes of thought of our own age, which some among us are prone to regard as clear and coherent and firmly grounded and final, are unlikely to appear so in the eyes of posterity to have any of those attributes.

For though we have more information at our disposal, we have not different or better minds.


In this thesis Arthur O. Lovejoy’s (1948: 3) declaration that ‘ideas are commodities that enter into interstate commerce’ has been taken both as an inspiration and as a guide for a discussion of the ‘complex of associations’ connected with the idea[s] of human perfectibility, progress and evolution, as these relate to the discussion of the ‘possible improvement’ of both human society and the human organism from the late eighteenth century to the decade preceding the outbreak of the Great War. While recognizing that his methodology is elusive, Lovejoy’s recommendation that the study of the history of ideas should proceed along interdisciplinary lines has been freely adopted. Starting in the eighteenth century the inquiry has focussed on the way in which ideas about human development have ‘crossed boundaries’ to use Foucault’s (1972) phrase of various professional and academic disciplines including psychology, sociology and anthropology. These disciplines constitute what during that time was often referred to as the ‘science of man’. The parallel influence of literature and to a lesser extent visual art in advancing certain assumptions about human biological and social development is highlighted and examined. The concerns of the ‘science of man’, that is, the enterprise which has as its field of attention the study of humanity and the concerns of humanity are logically connected with the three fields to which Lovejoy owed his method: philosophy, history and literature.

In making the focus of attention the period between 1795 marked by the publication of the Marquis de Condorcet’s Esquisse d’un tableau historique des progrès de l’esprit humain (Sketch of a historical picture of the progress of the human mind) and
the outbreak of the Great War, it is possible to examine a period of time when the boundaries of disciplines which are now recognized as discrete were yet fluid. It was still possible for a single individual to make a contribution in more than one area. Herbert Spencer for example, made an important contribution to the development of sociology, but also to psychology and education; while he is still often styled as a philosopher, and only rarely now as a scientist in which area he was also active. On the other hand his contemporary, Francis Galton is recognizable as a hypothesis-testing scientist and as a psychologist making use of one of the most pervasive research tools of psychology in the twentieth century: statistics. Yet he has also surprisingly been described as an ‘explorer’ which in his youth he was, in Africa. But this is now largely ignored. And it is important; for his early experience in South-west Africa involved the practical application of tools for measuring various phenomena including natural features and the weather; and also people. His application of anthropometric measurement to Bushmen provided him with a spur to develop his lifelong interest in individual differences and the development of procedures involved in the service of the ‘science’ he would later name ‘eugenics’.

The best example to the possibility of disciplinary fluidity and a willingness to join with others—which Lovejoy advocated, in the service of knowledge—is given by the example set by the Société des observateurs de l’homme. This group of French intellectuals, eclectic in its disciplinary make-up as well as in its philosophy, played a much more important role in the development of the ‘science[s] of man’ than is recognized today. They are important to the history of scientific observation in the Southern Hemisphere, particularly in Australia, while they have tended to be remembered only for their individual contributions to European science. Lamarck the naturalist; Cabanis the physician and physiologist; Cuvier the anatomist and biologist; Degèrando the philosopher; Jussieu the botanist; Sicard the linguist and teacher of the deaf; Péron the anthropologist; Pinel the psychiatrist. Napoleon Bonaparte was among their number, so was Condorcet. The interrelatedness of their disciplinary efforts and the connectedness of their lives, is what signifies them as a means for understanding the development of fields of knowledge during the late eighteenth and early nineteenth centuries. This understanding enables a consequent examination and discussion of a similar relationship existing in nineteenth century England among notable Victorians such as Carlyle, Spencer, Galton and Darwin.

Psychologically and philosophically the vision of the members of the Société des observateurs de l’homme was, to paraphrase the sentiment of a phrase expressed by Carlyle with respect to the intellectual climate of his own time, both ‘inward looking and outward looking’. That is, they looked to the development of their own sphere[s]
of interest in science and social science, while serving a broader agenda, which was no less to create a new science capable of discovering the truths of human existence. In the case of the Enlightenment *philosophes* they did this when increasing overseas exploration exposed seamen and travellers to new cultures, particularly those in Africa and the Pacific. It was a time when the writings of Diderot and Rousseau encouraged speculation about ‘man’s place in nature’, and when there was a receptive audience at home, one willing to speculate on and vigorously debate the idea of a perfect society. Pacific exploration provided eighteenth century philosophical travellers with a mirror to nature, and a great laboratory in the world.

For the English intellectual of Victoria’s reign the task of discovering the truths of human social and biological existence was carried out in a period stimulated by the reality of radical political, economic, technological and social change. The occurrence of this set of circumstances created a heightened sense of both a philosophical and psychological break with the past. At the same time this set of conditions stimulated an increased desire to understand the historical past and its relationship to the present. This acted as an incentive for making the notion of ‘progress’ a topic worthy of analysis within the developing field of historiography and within philosophical and sociological discourse. The perceived historical break with the past plus the desire to understand the purported link between past and present could also be seen to account for both the new interest in ‘individual differences’ and the connectedness of family over time, of lineage, and in Galton’s exalted interest in the notion of the hereditary development of genius.

In having made the choice to attend to the complex of ideas associated with perfectibility—which takes in attendant notions of progress and change, mostly interpreted here as the concept of evolutionary change over time as revealed in the work of Lamarck, Spencer, the Darwins, Erasmus and Charles—the focus of attention, has to some extent been on the rôle of semantic transitions and confusions, or shifts and of ambiguities in meanings of terms, in the history of thought’ of those notions. This has been a traditional focus in the practice of the history of ideas.

There are those like Quentin Skinner and J. G. A. Pocock, who argue for the history of ideas as a history of languages. This practice had been largely eschewed. While Rousseau (1984: 91) may have encouraged his readers to remember ‘how many ideas we owe to the use of language; how much grammar exercises and facilitates the operations of the mind’, in the end such an emphasis tends to encourage only a very narrow linguistic analysis of words and texts from any period under review; while discounting other contributing factors which go to inform a broader knowledge of an age and the opinions of people who contributed to its intellectual history. This very
precise method has been avoided in favour of a more discursive one which examines how ideas were perceived and how ideas were understood by various individuals engaged in various occupations roughly between the French Revolution and the Great War. Since this is the way of proceeding which best captures Lovejoy’s (1940: 8) belief that the study of the history of ideas should reflect the ‘human interestingness’ of episodes in history and one which should also reflect the ‘moving drama of life’. Such a process is also openly ‘instructive’ or serviceable. It takes pleasure in the act of sharing intellectual discourse which others. It is this which is at the heart of the eclectic enterprise which to paraphrase Lovejoy (1940: 8) has as its raison d’être the analysis of the origin, growth, spread, interaction and consequence of the ideas which generations have cherished and fought over.

E. H. Carr ([1961] 1990: 175) in writing about the social context of twentieth century literary criticism, observed that the tendency for intellectuals to seek a method to evaluate intellectual and artistic output in a dispassionate manner was revived by the influential critic F. R. Leavis who ‘revived Matthew Arnold’s vision of a class of disinterested intellectuals constituting the flower of society and standing above it’. This ‘new literary criticism,’ began with the Cambridge scholar I. A. Richards author of Principles of Literary Criticism (1924) ‘who distinguished between objective (scientific) and subjective (emotive) elements in literature,’ with his successors trying to ‘equate the literary critic with scientific observers, applying objective criteria to the text and ignoring all questions of derivation or context’ (Carr [1961] 1990: 175). Richards in the 1920s was as eager to bring to the arts and humanities, particularly to literary criticism, the precise language and method of analysis characteristic of the methodology to the pure sciences. As such he followed in the footsteps of those nineteenth century social scientists who had in the 1880s desired to do likewise for their own disciplines:

The question is whether a certain kind of experience is or is not like other kinds of experience. Plainly it is a question as to the degree of likeness. Be it granted… that there are all sorts of experiences involved in the values of the arts, and that attributions of Beauty spring from all sorts of causes. Is there among these one kind of experience as different from experiences which don’t occur as, say envy is from remembering, or as mathematical calculation is from eating cherries? And what degree of difference would make it specific? (Richards [1924] 1926: 14 [emphasis in original])

On these developments Carr comments:

The formalists of the 1930s, 1940s and 1950s, and structuralists of the 1960s and 1970s sought to isolate literature as a “pure” entity confined within the limits of language, and uncontaminated by any other reality.
But literary criticism cannot be rooted exclusively in literature, since the critic himself is outside literature and brings with him elements from other spheres. (Carr [1961] 1990: 175)

An argument can be made for the relevance of this view when considering the process which has been employed in writing this thesis. Richards sought to draw a distinction between high and popular culture. Already lamenting the influence of those technologies which would become pervasive in the communication of ideas in the twentieth century: radio and television. The position which has been taken here is that since the process of history itself is influenced by many often contradictory and untidy factors, the history of ideas is also contaminated by other kinds of reality. There is not necessarily a ‘pure’ form of the so-called discipline called the history of ideas, or even an ideal way to proceed.

While Bevir (1999) argues against Lovejoy’s method calling it overly atomistic and philosophical, Lovejoy’s emphasis on the variety of emerging responses in the history of ideas is fairly close to Bevir’s (1997) own ‘folk psychology’. Folk psychology is an approach which takes into consideration the fact that human beings have beliefs, fears and desires which motivate them, and that they exercise their reason or imagination in often novel or imaginative ways. This is a perspective which broadens the scope of the history of ideas. Folk psychology or what may be called a social-psychological frame of reference, allows for the contemplation of other approaches even more deeply rooted in points of view taken from psychology, particularly from dynamic psychology, which Lovejoy (1917: 151–2) himself must have been aware of when he wrote early in his career:

The entire history of philosophy is there to remind us what part has again and again been played by unconscious emotional bias, inexplicit yet controlling presuppositions, by the pervasive influence of some personal type of imagery… by… the most casual inadvertence or forgetfulness. Against these subjective sources of error, the presence of which we are all ready enough to recognize in the thinking of our predecessors, not to say our contemporaries, we can guard only by seeking the complementary and correcting action of other minds upon our own.

It is to this that Edwin Boring (1950) attends when he draws attention to Tolstoy’s view of history as told in War and Peace (1869). Embracing a view similar to that of Spencer with respect to the gradual metamorphosis and creation of ‘civilization’ out of simple and inchoate social arrangements, Boring (1950: 31) argues that Tolstoy regards history as ‘an aggregate of an infinite tiny events which make up… “the hive-life of mankind”’. Boring (1950: 31) elaborates:

The campaign of Napoleon in Russia in 1812 is to be understood as caused by a totality of little events, such as a whim of Napoleon on a certain day, the pique of Alexander on another day, the advice of a colonel who wished, not to advance History’s Great Purpose, but to get for himself a promotion, and the fearless charge of a young cavalry commander who, unaware of the danger, could not resist leading
his men, without orders, in a gallop across the level plain. History Tolstoy argued, reveals no Great Purpose in action. It is whatever the coincidence of many little events have made it and its distinguishing features. Just so you recognize a rhinoceros by its horn, a convenient label which the beast could nevertheles do without. Much more vital to the rhinoceros is his medulla oblongata, but that, since it does not show, is mentioned only by the biologist.

How is this relevant here? It is relevant because such a stance it may be argued, is seen to embrace Lovejoy’s efforts to broaden the discussion of the development of the history of ideas to include the imput of the accidental, of ‘unconscious mental habits’, of ‘implicit or explicit presuppositions’, of the conduct of ‘minor’ actors; and to make these factors relevant in historiography. Therefore it is also relevant as a justification for the attempt made to take such factors into consideration in the writing of this thesis.

For example, in the chapter devoted to Francis Galton one of Boring’s (1950) ‘great men’ of science, reference is made to the efforts of Galton and his [mainly scientific] colleagues to start a scientific journal. In the reference note attached to this anecdote attention is drawn to the fact that the whole effort to form an ongoing editorial board came to nothing because the scientists did not have the time or necessary expertise to run a specialist magazine. Herbert Spencer, one of the founders, was habitually distracted by the intellectual labour involved in writing First Principles (1862), a subject ‘upon which he always liked to dilate’; but a subject to which Galton implicitly suggests everybody else was indifferent and perhaps even hostile. That the prestigious journal Nature ever eventuated at all was largely due to the labours of an hard-working astronomer called Norman Lockyer. Such happenstances are probably more influential in the history of ideas than is generally acknowledged.

For this reason bringing a textual approach to the task of analysing intellectual history, one which refuses to take into account the interlocking minutiae of human experience, is seen as putting too much restraint on the process for understanding change. There is a point where the ideas of one meet the ideas of another; where the ideas of one meet the interpretation of another. Where ideas meet actions and where actions are propelled by prevailing conditions, points of view, fashion, facts, ‘feeling or taste’. Where ‘descent with modification’ of Darwin, as expressed in the pages of the Origin of Species meets the interpretation placed upon evolutionary theory by a myriad of writers, is extended through half a century of speculation on the origin of life, attenuated by the notion of ‘survival of the fittest’ as interpreted and promulgated by William Rathbone Greg, in ‘On the failure of natural selection in the case of man’. The point where the benighted Bushmen meets the chimpanzee in a frockcoat.

For this writer then, the history of ideas is not entirely about history and not entirely about ideas. It is about the interstice between history and ideas. Between the ideal and
the reality, and the consequence in action of an idea, or theory. It is about those who inaugurate, conceive and conceptualise: the principal; and those who act as disciples, associates and followers. It is about the point where the disciplines, philosophy, history, psychology, sociology, anthropology meet; where the arts meet the sciences.

It is also about and extending the boundary of intellectual history. Of going beyond Lovejoy’s twelve labels of disciplinary specialism, as well as going beyond the possible limitation placed on topic of discussion by the circumstance of geography.

It is a variant of the ‘north-south’ economic dialogue, or lack of dialogue, which makes England, Europe and America the centre and Australasia the periphery. In the case of Australia, a conspicuous geographic fact still exists, yet one which needs to be addressed by those who believe that the history of ideas should have no boundaries. This was Condorcet’s ideal when he identified a future in which the ‘human mind was truly freed from spatial limitations’. This is now a possibility, in a way which would probably have fascinated the philosophes. It was improved communication which allowed the Romans to extend their intellectual influence beyond the Mediterranean littoral. It was improved communication which ‘octopus-like’ expanded the boundaries of nineteenth century material and cultural experience as well as expanding the boundaries of intellectual life. In the late twentieth and in the twenty-first century the Internet will at least for some free the mind of spatial limitation.

This thesis pays tribute it is obvious to the European tradition of intellectual and cultural advancement; yet a history of ideas which is broader in its catchment is desired. One which takes account of the parochial, the local within the larger realm; as been demonstrated by including the example of the idiosyncratic Dr Alan Carroll as an exemplar of this position. One of the questions being asked is: how do ideas travel? How do ideas cross the equator and what happens to them when they arrive in strange lands? What is the process of modification? Ideally the study of the history of ideas may go beyond what currently constitutes the boundary of intellectual history, and move into newer fields. A trend already identified by Donald Kelley ([1990b] 1994: [147] 316) when he observes that areas of interest for the historian of ideas has broadened somewhat since Lovejoy’s time, with some fields contracting, and others expanding, particularly:

The history of science, originally a compartment of philosophy which has expanded vastly in the past generation or two, admitting into its domain not only a variety of sub-fields beyond the hard—the “theoretical”—sciences but also mysterious areas of magic and the occult, and of… many special topics ranging from institutions to ideas, from plenum to vacuum… [which] for intellectual historians it has become even more significant because of its fundamental concerns with the complex processes of the discovery and criticism, the reception and rejection of ideas.
Significantly the history of ideas has also:

Expanded to include such abstract or arcane topics as cultural space and time, perception and sentiment, symbol and gesture, sexuality and madness... inter-, para-,
and super-disciplinary problems [which] bear directly (as Lovejoy would probably have agreed) on the study of intellectual history, its conceptual, scholarly, and ideological environment. (Kelley [1990b] 1994: [149 ] 318)

To this may be added the proviso stated by Lovejoy in respect to the stance which any historian, including the intellectual historian may take into consideration in relation to his or her practice.

In considering the issue of the relationship between the past and the present—that is the problem which is created for the historian of ideas as a writer in the present confronted with the (writings and ideas of) past—Lovejoy was of the opinion ‘that historiography in general is and should be relevant to one present problem, but to one that is present only in the sense that it is perennial’ (Lovejoy 1939: 484 [emphasis in original]). He continued, adding that he also believed that:

The intellectual historian’s general and perennial problem... is the problem of human nature and human behavior, including... intellectual behavior—the processes by which individual and group interests, opinions, and tastes are formed and the sequences and laws, if any, of their changes—so far as a knowledge of the acts, thoughts, and feelings of men [and women] in the past may throw light on the matter. History is a branch of anthropology in the widest sense of the term. (Lovejoy 1939: 484)

Lovejoy’s own *Great Chain of Being* is an example of an exploration of the historiography of such a current yet perennial issue: evolution. In this (current) thesis the problem of ‘historical’ ideas vis-a-vis human physical and mental growth has been similarly viewed. From the context of his own culture Lovejoy:

found no difficulty in the supposition that any entity, or subject of discourse, may actually have one set of properties which are relevant to one context, and others which are relevant to other contexts, and that, in attending to one of these sets, you do not thereby alter either it or the others. One aspect of the life of George Washington is relevant to the history of American foreign policy, another to the history of dentistry and to that of early American portrait painting. In selecting for separate inquiry his rôle in the formation of our foreign policy, the political historian does not appear to me to imply any transformation of the event that in later life Washington wore a bulky set of artificial ivory teeth, a fact, it seems, of some interest to the historians of dentistry and to students of his portraits (Lovejoy 1939: 485)

He invoked his familiar stance that the task of the historian of ideas is ‘to fulfil the Delphian imperative’ (Lovejoy 1939: 484). By implication the task of undertaking a study in the history of ideas is not instrumental in its rationale: ‘It has its own reason for being’ (Lovejoy 1940: 8). The beauty of the practice of the history of ideas exists in its potential for encouraging a pluralistic and flexible approach as far as method is concerned, and in its generosity of spirit as far as encouraging interdisciplinary communication is concerned. The possibilities for future exploration in the field of the
history of ideas exist across the boundaries of many disciplines. Or as Lovejoy (1936: 16) put it, the beauty of the history of ideas lies in its ability to put ‘gates through fences’.
Appendix

Condorcet’s Ten Stages of Historical Development

The First Stage: Men are united in tribes

The Second Stage: Pastoral peoples: The transition from this stage to that of agricultural peoples.

The Third Stage: The progress of agricultural peoples up to the invention of the alphabet.

The Fourth Stage: The progress of the human mind in Greece up to the division of the sciences about the time of Alexander the Great.

The Fifth Stage: The progress of the sciences from their division to their decline.

The Sixth Stage: The decadence of knowledge to the restoration about the time of the crusades.

The Seventh Stage: The early progress of science from its revival in the West to the invention of printing.

The Eighth Stage: From the invention of printing to the time when philosophy and the sciences shook off the yoke of authority.

The Ninth Stage: From Descartes to the foundation of the French Republic.

The Tenth Stage: The future progress of the human mind.

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