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# Veins of Resemblance: Photography and Eugenics

DAVID GREEN

The world is beginning to perceive that the life of each individual is in some real sense a prolongation of those of his ancestry. His character, his vigour and his disease are principally theirs; sometimes his faculties are blends of ancestral qualities, more frequently they are aggregates, veins of resemblance to one or other of them showing now here and now there. The life histories of our relatives are, therefore, more instructive to us than those of strangers; they are especially able to forewarn and to encourage us, for they are prophetic of our own futures.<sup>1</sup>

The last quarter of the nineteenth century was a period of remarkable transition for photography. Not only was there the continued development and growth of existing modes of photography but also the rapid proliferation of entirely new applications and uses of the photographic image. Undoubtedly the large number of improvements and innovations in photographic technology, which brought about cheaper, easier and more convenient methods of production, contributed to a general expansion of the medium. But these alone would have been inconsequential without more profound shifts within the entire social formation. It was the onset of a series of much broader and more far reaching developments in the economic, social and political configuration of late nineteenth-century capitalism which not only made possible, but brought into being, a new range of cultural functions for photography.

In many ways it was the status of amateur photography as both a commodity item and as a cultural form which is indicative of the widespread and decisive changes within the economic and social organisation of capitalism which involved the radical reorganisation of existing patterns of production and consumption. In its origins, amateur photography was dependent upon the extension of the factory system into an area of production – the manufacture of photographic equipment – which previously had been unaffected by it. Technically this was easily accomplished by the mechanisation and automation of methods of production which had hitherto been limited to larger manufacturing industries processing raw materials but were now applied to the mass production of durable consumer goods, such as photographic equipment, aimed at a rapidly expanding domestic market. Such systematic re-organisation of productive forces as occurred in the latter half of the nineteenth century necessitated, however, an equal application of management and planning in the sphere of consumption. Indeed by the late 1880s

many of the problems associated with the structure of a capitalist mode of production geared to the mass manufacture of commodity goods had largely been solved. The main problem became one of how to ensure the organisation and stability of market forces appropriate both to the scale and form of the processes of mass production. What this led to was the development of various technical means for standardising demand within those potential markets for mass-produced consumer goods in the increasingly affluent sectors of the lower middle and working classes. Here too the appropriation of photography to economic and commercial needs within the operations of a rapidly growing advertising industry became an important constituent in the attempt to control and regulate those markets for commodity goods, such as that for photography itself, which were being created in a period of substantial economic and social change.

These new applications of photography to the domestic market of amateurism and the profession of advertising provide particularly explicit instances of the changing economic and social relations of production and consumption which mark the end of the nineteenth century. Yet alongside these there emerged a network of photographic practices which, though less directly implicated, were no less effective or important for the initial formation and subsequent stability of the new economic and social order. Indeed, to understand the authority which began to accrue to photography in the late nineteenth century it is essential to consider the functions which it came to serve across a range of scientific, academic and technical disciplines.<sup>2</sup>

What assured photography a position within these domains was its apparent consistency with the empiricist assumptions and methodological procedures of naturalism. Scientific naturalism assumed the existence of pure facts beyond, or prior to, their identification but it also called for methods of observation and analysis which were independent of the prejudices and interests of the observer and thus uncontaminated by the potential subjectivism of theory. Scientific knowledge was held to be commensurate with the recording and accumulation of empirically verifiable regularities, the result of a process of disinterested contemplation in which the perceiving subject interposes minimally, and then always passively, between reality and its representation. Insofar as the production of knowledge occurs free of

subjective error, a representation of reality can be regarded as the objective equivalent of the real. In many ways pictorial representation became the most adequate metaphor for an epistemology based upon empiricist methodologies. Since, according to the premises of scientific naturalism, knowledge is a function of reality itself, it can be considered as analogous to the measurement of pictorial truth by the degree of its correspondence to appearances.

It is the very notion that pictorial depiction in general, and photography in particular, are passive processes determined by the existence of reality as a model for their own formation which made visual representation such an attractive mode of scientific enquiry.

What secured for photography its privileged position in the domain of science was not simply the technical and mechanical nature of the processes involved, though these certainly underwrote the belief in its objectivity and impartiality. Much more important was the assertion of a seamless relation between the photographic image and appearances whereby, under certain conditions, the image could function as reality itself. This called for the suppression of all evidence of the photograph's own materiality and the denial of the image's status as a representation in favour of its immediate identity with its referent.

In what follows it will be argued, contrary to the presuppositions of scientific naturalism, that knowledge cannot be regarded as autonomous or transcendent of the context in which it is used because in itself it is the product of, and intended to serve, manipulative and predictive interests.<sup>1</sup> In taking knowledge to be foremost instrumental and normative it is assumed that the status of scientific knowledge is not a matter of its relationship to the 'real' but to the social context of its production, evaluation and use. This perspective stresses that knowledge is not only a social product but that its generation and maintenance, far from being the result of random and speculative processes of learning, are dependent upon the objectives and interests of social individuals working within the parameters of given cultural and historical circumstances. Of course, this argument does not imply that the presence of social interests bearing upon the production of knowledge represents any devaluation of its explanatory or technical efficacy nor that such influences corrupt knowledge for expedient purposes. Such reservations would only reproduce the naturalist assumption of the existence of pure facts attainable through the proper and rigorous methods of observation and analysis. Social interests and their consequences are delineated as factors within the nature of knowledge itself; they determine how an area of knowledge is defined, who is acknowledged as a legitimate source of authority with regard to such knowledge, and what are the techniques and methods of

explication which are deemed to be appropriate to the definition of particular knowledge.

It is equally mistaken to assess pictorial representations by any relation they may hold to the appearance of reality instead of in conjunction with the purposes to which they are put and to the context of the activities within which they function.<sup>2</sup> But if we are to challenge the traditional notion of scientific knowledge as the result of processes of disinterested contemplation, we must as systematically question the assumption that the photographic image can be treated as the passive reflector of reality. Photographic images must be distinguished from the objects or the appearance of the objects to which they refer; their intelligibility as representations cannot be judged from the correlation with a reality of appearances but with regard to the functions they intended to facilitate and the objectives which they serve in social activity. Further, photographs have to be regarded in every case as actively manufactured or constructed renderings of reality, produced within the limits of pictorial and technical conventions and subject to cultural and material resources. Photographic representations are not constructed first and then used, but as representations they are always constructed in use. Accordingly we cannot study photographs by methods which assign to them any meanings or values independent of their function within specific social contexts. Instead, the analysis must be of their production, evaluation and acceptance as part of a social and institutional process in which the availability of certain procedures, competences and techniques develops historically in accordance with the social interests and ideological objectives of particular groups, factions or classes.

It is doubtful, however, if this type of analysis can be undertaken within the terms of reference of a conventional history of photography. It is not merely that the history of photography exists only as a history of an art, and therefore necessarily excludes or marginalises those modes of photography with which this essay is concerned, but that such an analysis implicitly challenges the very notion that a 'history of photography' is possible. It follows from what has already been said that there can be no such singular identity to photography which binds together what are in actuality very different and varied functions of the image under the pretext of the media they share. What alone unites photographs or divides them from each other is the particular conditions within which they exist and the social and historical circumstances which determine the manner in which they are produced and used.<sup>3</sup> Under consideration are not the components of any object but the conditions of photography as a discursive practice.<sup>4</sup> Of course it may be argued that photographs are objects which materially embody particular interpretations and meanings as a series of formal and iconographic



Fig. 1: Francis Galton: Composite portraits of the Jewish Type, 1885.



Fig. 2: Francis Galton: Composite portraits of the Jewish Type, 1885.



codes. But all such codes are themselves historically and socially specific and the original purposes for which a photograph was made and the meanings which it was intended to engender neither indicate nor guarantee the position and status which it may subsequently occupy in another context. It is one thing to argue that all photographs contain the traces of their original historical and social context by virtue of their 'internalisation' of the conditions in which they are produced but it is unreasonable to suppose that these can be retrieved and explicated from the photograph itself. 'Textual' readings of photographs cannot be excluded, but it is necessary to decentre the assumed exceptional status of the object as the ultimate arbiter of meaning. In short, the photograph must be treated as one kind of evidence among others.

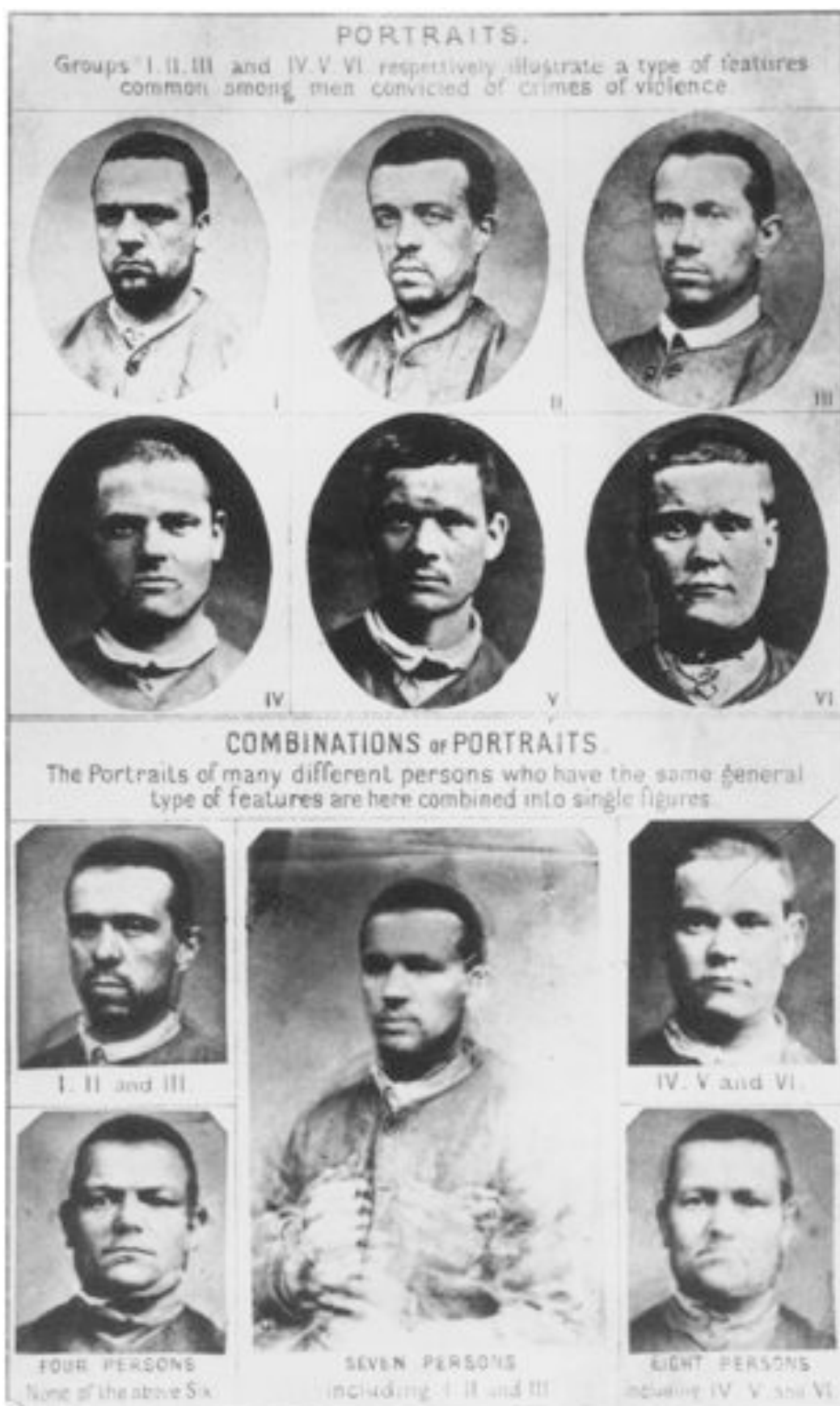
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In extending these arguments we will be concerned with the relation between photography and the social sciences and, in particular, with the applications of photography to some key issues of sociological and anthropological thought which were to converge in the science of eugenics.

The origins of what we would recognise today as the modern social sciences (i.e. sociology, political economy, social psychology and anthropology) can be traced to the late eighteenth century, but their establishment as discrete and legitimate scientific disciplines needed the reorganisation of an existing field of intellectual and academic activity which did not properly take place until the middle of the nineteenth century.<sup>7</sup> The problem was essentially one of their institutional existence. By the end of the 1840s a unified system of specialist scientific societies was largely in place. These provided the supportive network for scientific activity; they supplied the immediate audience for scientific work, a basis for the exchange of information and ideas and the means to promote and disseminate knowledge. Moreover, this institutional base became an essential component of a professional middle-class culture and economy which gave organisational expression to the emerging identity and social status of the scientist.<sup>8</sup> Implicit in this process of institutionalisation was the professionalisation of scientific activity and the legitimisation of those accredited with the possession and control over a specialised body of knowledge. But the claims of an intellectual meritocracy in the social sciences especially had ultimately to be based upon the use to which such knowledge could be put; the growth and development of the social sciences lies within their articulation with other social and political institutions which binds their existence to the complex organisation of the modern State which was quickly coming into being. The formation of the modern social

sciences, of their own distinctive categories of thought, their methodologies, their procedures and objects of analysis, is enmeshed with the administrative functions of both central and local government agencies whereby the State, after 1870 equipped with greater and more efficient measures of authority and responsibility, was able to extend and strengthen its means of social control. If we wish to trace the rationale for the social sciences it is to be found within the highly 'functional' role which they fulfilled across a range of civil institutions - medical, educational, legal and penal - which together constituted the ideological armature of the modern State. It is here that we must pursue the implementation of scientific procedures at the level of particular institutional and discursive practices, which involved new methods of analysis and observation and new forms of documentation, and where the formation of new fields of knowledge is inseparable from the effects of power and domination that they engendered.<sup>9</sup> It is here, too, that we will discover the use of photographic records as a pervasive feature of scientific discourses, neither incidental nor peripheral to other discursive forms but often occupying a role of peculiar importance.

Photography entered the field of the social sciences at a moment when the demand for modes of empirical observation and documentation, and techniques of quantitative measurement and analysis, were uppermost. The belief in the objectivity of the photographic process was the prerequisite to photography's eventual success, but this was also dependent upon a series of discursive and technical transformations which resulted from a unique conjuncture of the natural and social sciences.<sup>10</sup> At a fundamental level this involved the use of concepts established within the biological sciences, particularly of theories of evolution and the mechanisms of evolutionary change as analogy or metaphor for sociocultural phenomena and their historical development. Increasingly, however, the use of evolutionary theories came to suggest the inevitable determination of social structures, processes and institutions, and within these the capacities of individuals, by the existence of innate and immutable biological laws. What is important for our present purposes is that within this biologisation of history the perception of a natural order of social structure and stratification was thought to be readily available in the evidence of the human body. In an attempt to locate and define the origins of sociocultural differences within human populations and amongst particular social groups and classes the body became the focus for a range of scientific disciplines and the object of analysis for a variety of documentary practices. It is within this context that photography came to be used, together with an extensive range of physiological observations and techniques for measuring and classifying the



*Fig. 3: From Francis Galton, 'Inquiries into Human Faculty and its Development'.  
Reproduced by courtesy of University College, London.*

human body in the attempt to identify and define the characteristic or typical features of race, class or social group.<sup>11</sup> The result is a quite particular genre of scientific photography instituted in the nineteenth century in which the image is intended to function as a kind of evidence, an irrefutable testimony to the existence of facts. It is a genre of photography which is dependent upon the simple equation between appearance and truth, and between description and knowledge. And yet, for all of their evident simplicity, these are carefully constructed images. They were composed within a small and yet quite specific set of photographic codes and conventions and were subject to elaborate and yet precise methods which governed their production. In numerous images the pattern is repeated: the subject, sometimes naked, is positioned full face and in profile to the camera, the body isolated within a shallow space and sharply defined against a plain background, the lighting is uniform and clear. Behind these bald statements of comparative morphology is not, however, a pre-existent truth of pure and unadulterated facts but a complex system of social knowledge. Their intelligibility does not reside in their correspondence with a reality of appearances but in their relation to a variety of other discourses, representations and significations – a corporeal semiotics – which specified the ‘body’ as the nexus of a network of scientific practices and new modes of surveillance and documentation.

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Eugenics stands firmly within that union of evolutionary theory and liberal political economy which gave rise to the ideologies of social Darwinism, of which the most potent variant proved to be Herbert Spencer's extension of the principles of natural selection to explain racial, national and class privilege. Sociological and anthropological theories of the 1880s were quick to adopt Spencer's initiative in extending biological concepts to socio-cultural phenomena. Historical processes were thus reconceptualised within the framework of an evolutionary struggle for existence in which the fate of individuals, social groups or entire races could be reduced to the notion of the ‘survival of the fittest’. Against such a background of rampant biologism eugenics developed rapidly and influentially both as a science and as a social and political philosophy.

When Francis Galton first introduced the term ‘eugenics’ in *Inquiries into Human Faculty*, published in 1869, it was to define the study of the hereditary differences of mental, moral and physical traits amongst individuals, classes and races, and the measures of social control which could be taken to ensure the general improvement of the species.<sup>12</sup> Eugenics, therefore, was to embody two major strands of activity. On the one

hand it was to be a scientific discipline which offered an analysis of human society and social structure as the result of hereditary differences amongst the individuals and groups which composed it; and on the other, based upon the conclusions of this analysis which would yield a knowledge of the processes of natural selection and the mechanisms of heredity, a programme of social and political reform concerned with ‘radical improvement’. The close relationship which existed within eugenics between the development of a body of scientific knowledge and the promotion of social and political aims is evident in the earliest of Galton's writings on the subject. In his introduction to *Human Faculty* he states:

My general object has been to take note of the varied hereditary faculties of different men, and of the great differences in families and races, to learn how far history may have shown the practicability of supplanting the human stock by better strains, and to consider whether it might not be our duty to do so by such efforts as may be reasonable, thus exerting ourselves to further the ends of evolution more rapidly and with less distress than if events were left to their own course.<sup>13</sup>

This image of the benign role of science enabling what was seen as the natural and inevitable course of human evolution remained central to Galton's arguments for the validity and necessity of a programme of eugenics practice. In a short but cogent statement written thirty years later he was to claim that the principles of eugenics

...co-operate with the workings of nature by securing that humanity shall be represented by the fittest races. What nature does blindly, slowly, and ruthlessly, man may do providently, quickly, and kindly ...<sup>14</sup>

Insofar as eugenics identified intellectual, moral and physical ‘fitness’ as innate qualities it could be, and often was, extended to account for the inequalities of power and wealth which existed between races and nations and to justify as ‘natural’ the domination of colonised peoples by the European. In Britain, however, eugenics developed almost exclusively as a study of the relative differences between social classes and class factions.<sup>15</sup> Questions of race were considered only where these affected a domestic eugenics policy in such issues as immigration and miscegenation. Eugenics offered an understanding of the social structure of British society as an entirely natural phenomenon, in which social hierarchy was seen as the result of predetermined differences between individuals. Since eugenics assumed that an existing social hierarchy resulted from the differences in the innate qualities and capacities of individuals, the basis of all eugenics reform was the introduction of any measure which would

reduce the rate of reproduction amongst the lower orders of society (negative eugenics) whilst encouraging the rate of reproduction amongst those individuals endowed with qualities which were eugenically valued (positive eugenics). The decade preceding the outbreak of the First World War was perhaps the only period in which there was any serious consideration given to eugenics practice as a viable social and political programme of reform which was capable of achieving legislative support. Although its only major political success was the introduction of the Mental Deficiency Bill in 1913, eugenics had a profound impact upon the general intellectual and academic climate during these few years and its influence is perhaps to be measured in the more subtle ways in which its effects were registered in, for example, the selection procedures used in the educational system and which continue to have a bearing upon all of our lives. But Galton had envisaged the ultimate aims of eugenics, and the mechanisms through which these were to be achieved, as early as the 1860s and few of the supporters of eugenics who were to follow him rejected his conclusions:

It is no absurdity to expect, that it may hereafter be preached that while helpfulness to the weak, and sympathy with the suffering, is the natural form of outpouring of a merciful and kindly heart, yet the highest action of all is to provide a vigorous, national life, and that one practical and effective way in which individuals of feeble constitution can be shown mercy to their kind is by celibacy, lest they should bring beings into existence whose race is predoomed to destruction by the laws of nature. It may become to be avowed as a paramount duty, to anticipate the slow and stubborn processes of natural selection, by endeavouring to breed out feeble constitutions, and petty ignoble instincts, and to breed in those which are vigorous and noble and social . . . I do not see why any insolence of caste should prevent the gifted class, when they had the power, from treating their compatriots with all kindness, so long as they maintain celibacy. But if these continued to procreate children, inferior in moral, intellectual and physical qualities, it is easy to believe the time may come when such persons would be considered as enemies of the State, and to have forfeited all claims to kindness.<sup>16</sup>

But precisely who were these 'enemies of the State' and what was the nature of the threat they posed? At the heart of Galton's eugenics and its analysis of late Victorian society lies the potential problem of 'social control' which he thought would result from an imbalance in the rate of reproduction between members of the various social strata. In many ways eugenics can be considered as a response to fears about social stability, the effects of industrialisation and the conditions of urban existence which, as Gareth Sordman Jones has argued, were the persistent concerns of the middle classes in the late nineteenth century.<sup>17</sup> But the

focus of these fears was not the working classes as such but what Jones has termed the 'residuum'. Eugenics attempted to draw the line of demarcation between the socially useful elements of the working classes – the 'respectable' working class – and the 'residuum' which comprised all of those who through mental and physical weakness could fulfil no function useful to the needs of society. The first task of eugenics was to identify those who were the 'residuum':

The proportion of weakly and misshapen individuals is not to be estimated by those we meet in the streets; the worst cases are out of sight. We should parade before our mind's eye the inmates of the lunatic, idiot and pauper asylums, the prisoners, the patients in hospitals, the sufferers at home, the crippled, and the congenitally blind . . . our human civilized stock is far more weak through congenital imperfection than that of any other species of animals, whether wild or domestic.<sup>18</sup>

The threat which the 'residuum' posed was not necessarily that of social and political disorder, though this could never entirely be dismissed; but rather the 'residuum' was primarily represented by the eugenicist as a biological problem and, accordingly, what eugenics offered was a biological solution. The problem was that, if allowed to procreate freely, these social elements would lower the hereditary complexion of the nation to such an extent that its imperial superiority would be severely weakened. The solution proposed by eugenics required their isolation in institutions under the custodial care and supervision of medical science, suitably informed by the eugenical principles, which would ensure the eventual elimination of the 'residuum' by denying them the possibility of reproduction.

To eugenics the pauper, the unemployed, the criminal, the insane and the inveterately ill were considered not as social categories but entirely as natural ones. Eugenics was committed to the theory of fixed and innate characteristics which the individual possessed and which together constituted his 'civic worth'. The scientific validity of eugenics was dependent, therefore, on demonstrating the transmission of key characteristics from one generation to the next. Thus many of Galton's investigations in the 1870s were organised around the problem of tracing those hereditary differences which were capable of being identified and analysed in the outward physical character of the body.<sup>19</sup> The assumption was clearly that physiological and anatomical differences between individuals could be regarded as the indices of relative intellectual ability, moral qualities and psychological disposition. Towards the end of the decade, however, Galton argued that it was possible to gauge the prevalent types of human mentality and temperament with the same degree of precision as their physical character. Furthermore, since psycho-physics – 'the science of



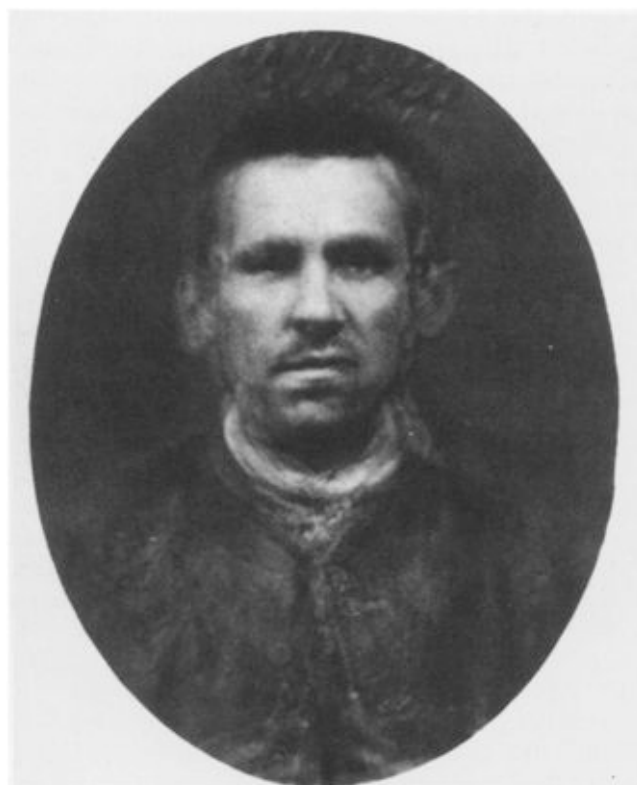


Fig. 4: Francis Galton: Composite portrait of a criminal type, 1879. Reproduced by courtesy of University College, London.

subjecting mental processes to physical measurement and physical laws' – could be assimilated with physiological and anatomical evidence, it offered the most complete scientific means to ascertain the typical nature of any single race or social group.<sup>20</sup>

The study of criminality which rapidly emerged as a major field of scientific investigation in the late 1870s and 1880s provided a focal point for the elaboration of these ideas. The pioneering studies of Cesare Lombroso, which culminated in the publication of *L'uomo delinquente* in 1876, were to be widely influential in setting the scope and bias of criminal anthropology throughout Europe, but in this country its development was also closely bound to that of eugenics. Lombroso's theory that criminality was the result of a specific and innate biological constitution, what he called 'the born criminal', and that criminal tendencies could be identified in the patterns of physical and psychological stigmata, was later to be faithfully reproduced by British criminal anthropologists, the most notable being Havelock Ellis.<sup>21</sup> On the basis that criminality was congenital and manifest in anatomical and physiological traits, criminal anthropology set about measuring, observing and documenting the body in an attempt to discover the 'biology of crime'. It depended heavily upon the well-established methods and techniques of anthropometry, which consisted of an extensive



Fig. 5: Francis Galton: Composite portrait of 'Ideal Family Likeness', 1862. Reproduced by courtesy of University College, London.

series of standardised measurements of the head and body, the description of key physical features of the face, and the calibration of non-statistical features such as the colour of the skin, hair and eyes. Emphasis was usually given, however, to an examination of the head and facial features, the implication being that any physical peculiarities which revealed themselves here could be regarded as indices to the development of the intellectual and psychological faculties of the individual. On the evidence of anthropometrical and anatomical data Lombroso's conclusions, reiterated by Havelock Ellis, were that the criminal was a distinct human type. Physiological features, such as the tendency towards prognathism, the arrested development of the cranial anterior often associated with cranial asymmetry, and an exaggeration of the normal cephalic index, which were found to be more common or more pronounced in the criminal, suggested a close relationship to the lower and inferior races of mankind. Not only was the criminal regarded as physiologically distinct but, corresponding to the degree of physical retrogression, there was the evidence of a general state of intellectual, psychological and moral atavism. Insofar as criminality was redefined as a natural and hereditary condition of a distinct human type, associated with a general deterioration of physical and mental health and a state of congenital imbecility and moral depravity, it is



Fig. 6: From *Herlock Ellis: 'The Criminal'*.

easy to see how criminal anthropology came to have far wider implications for eugenics. Far more than the particular techniques of analysis which eugenics required, criminal anthropology offered a scientific explanation of criminal behaviour which could be extended, and was often linked to, other 'deviant' types:

The weak point in criminal anthropology, it seems to me, is that while criminals have been weighed and measured, observed and described, the classes of society from which most of them come, but who have not been convicted of breaking the law, have not been observed in the same way, and the same scientific tests have not been applied to them. *A priori* there would be little use in gauging the criminal by the standard of the well-fed, the respectable and the comfortably well-off classes of society. The really scientific method would be to apply the tests on whole sections of the lower labouring classes of society including the criminals... it seems clear that a scientific criminal anthropology which is to cover the whole ground must deal with the idle, the vagrant, the pauper, the prostitute, the drunkard, the imbecile, the epileptic, and the insane, as well as the criminal.<sup>25</sup>

Thus when Galton delivered the presidential address to the Anthropology Section at the British Association meeting in 1877, the subject of which was 'the study of those groups of men who are sufficiently similar in their mental character or in

their physiognomy, or in both, to admit of classification', his decision to illustrate his lecture by an analysis of the 'ideal criminal type' had a much wider significance than its contribution to pure anthropological research. However, his immediate concern was the possibility of studying prevalent mental and psychological types with reference to physiological characteristics:

... no reasonable man can entertain a doubt that the convict class includes a large proportion of consummate scoundrels, and that we are entitled to expect to find in any large body of convicts a prevalence of the truly criminal characteristics... the ideal criminal has three peculiarities of character; his conscience is almost deficient, his instincts are vicious, and his power of self-control is very weak... It becomes an interesting question to know how far these peculiarities may be correlated with physical characteristics.<sup>26</sup>

It was the need to trace the peculiarities of the mental and psychological traits associated with criminality within the evidence of physiological characteristics, and particularly with reference to physiognomy, that led Galton to recommend to his audience the use of photography and to offer some suggestions as to how it could best be employed.<sup>27</sup>

Earlier in 1877 he had obtained from the Home Office a considerable number of photographic portraits of convicts held in Pentonville and Millbank prisons. The photographs were classified into three groups according to the nature of the crime: those convicted of murder and manslaughter, those convicted of felony, and those convicted of sexual offences:

By familiarising myself with the collection, and continually sorting the photographs in tentative ways, certain natural classes began to appear, some of which were exceedingly marked. It was also very evident that the three groups of criminals contributed in very different proportions to the different physiognomic classes.<sup>28</sup>

The problem was to find a method of extracting the typical physiognomic features from each of the three groups of photographs. Galton's solution was a simple one. By re-photographing several of the portraits onto the same photographic plate, giving each one a fraction of a normally adequate exposure, it was possible to combine the separate individual elements into a single generic or 'composite' image. Since all peculiarities to be found in the individual photographs are lost within the process, whilst those aspects which are common to all are emphasised, the resulting portrait contains only those physical features which can be considered typical of the group. Galton proceeded to make composites of each of the three groups of photographs in an effort to extract those physical features peculiar to each type of criminality and

thereby establish the means of comparison to each other and to non-criminals.<sup>26</sup>

Whilst Galton was aware of the potential applications of composite photography to anthropological studies, where he advocated its use in the definition and classification of racial types, his own employment of the process was, in nearly all cases, an extension of his concerns with eugenics.<sup>27</sup> Following the initial experiments with the composite portraits of criminals he made use of the process with series of images of lunatics, Westminster schoolboys, Jews, and phthisical patients.<sup>28</sup> The last of these produced the most extensive and complex series of composite photographs Galton attempted. In the spring of 1881 he commissioned a total of over four hundred photographs of phthisical patients attending two London hospitals and, for purposes of comparison, a further two hundred photographs of patients suffering from other illnesses. From these, numerous composites and co-composites were produced which, in some instances, combined as many as two hundred separate photographs. Although the initial results seemed to disprove the original premise that certain diathetic types were to be found within phthisical cases, Galton was able to make a rough division between two groups of patients which corresponded to those suffering from 'stomach' and 'tubercular' conditions. However, whilst Galton concluded that no firm correlation could be made between particular physiognomic characteristics and the predisposition towards phthisis, he indicated that it was still possible to distinguish between a particular physiognomic type which predominates amongst the congenitally ill and the rest of the 'healthy population'.<sup>29</sup>

The applications of composite photography were not, however, to be limited to the analysis of the eugenically 'undis'. Galton's original purpose in making composite portraits was not only to test the proposition that physical and mental traits could be correlated within the definition and isolation of physiognomic types but also to show that both physical and mental characteristics were transmissible by inheritance. Initially he had been unable to deal with the second of these concerns since it demanded photographic records of successive generations. In 1882, however, he began a number of projects intended to solve this problem. In that year Galton published a circular letter to amateur photographers requesting individual photographic portraits of as many members of their family as was possible.<sup>30</sup> He specified that all of the portraits should be taken absolutely in full face or in profile and under the same conditions of lighting and composition; otherwise there were no special requirements. In return for providing the photographs each benefactor would receive a composite portrait of 'family likeness'. Galton, for his own purposes, would be allowed to keep the original photographs and to make further com-

posites from them. With the aid of the photographic material he obtained, Galton was in a position to produce composites to examine the hereditary transmission of physiological character. On the basis of his own earlier theories of the statistical laws governing hereditary endowment, he assigned different 'weights' to the individual constituents of each composite portrait; thus each grandparent, uncle and aunt, brother or sister, and each parent would be given greater or lesser exposure in the final composite photograph. Not only could this method be used to obtain an 'ideal family likeness', or to compare the child with the composite of its parents, grandparents, etc., it could in principle be used to forecast the results of any union made between a married couple. Galton clearly saw composite photography as an invaluable extension of the technical apparatus of eugenics. All the methods of analysis and techniques which he had evolved in the 1870s were directed towards the prediction of incidence of physiological and psychological characteristics between successive generations. There was an obvious and strong link between the need for successful prediction of hereditary characteristics and the potential for control through the policies of selective breeding. Composite photography offered one such mechanism through which Galton thought it was possible to predict the occurrence of hereditary character which was the prerequisite for the planned improvement of the race:

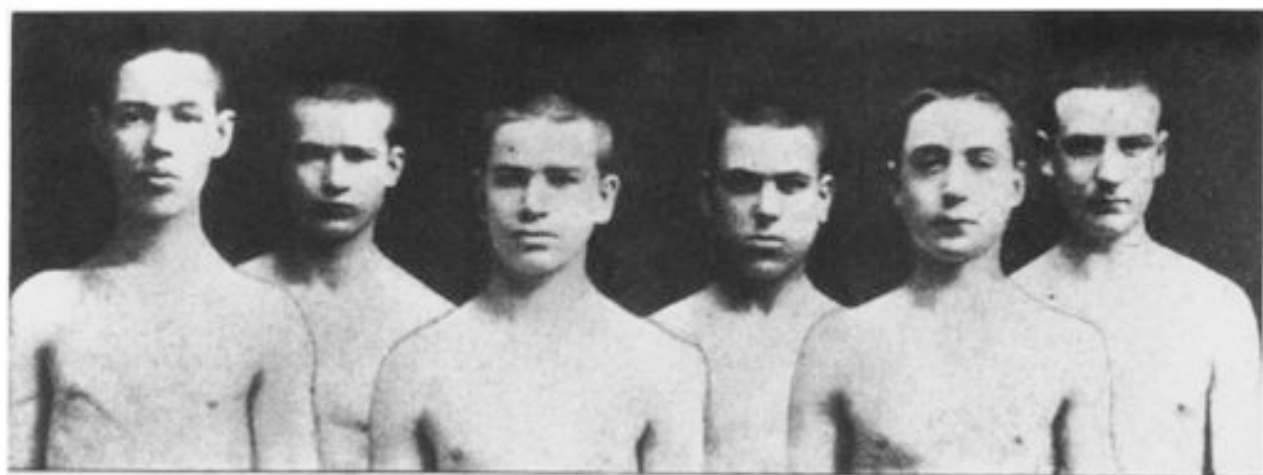
It is the essential notion of race that there should be some ideal typical form from which the individuals may deviate in all directions, but about which they chiefly cluster, and towards which their descendants will continue to cluster. The easiest direction in which a race can be improved is towards that central type, because nothing new has to be sought out. It is only necessary to encourage as far as practicable the breed of those who conform most nearly to the central type, and to restrain as far as may be the breed of those who deviate widely from it. Now there can hardly be a more appropriate method of discovering the central physiognomical type of any race or group than that of composite portraiture.<sup>31</sup>

Alongside these experiments with composite photography Galton was advocating the necessity of chronological photographic records of individuals which could be used by the medical profession in conjunction with anthropometric and physiological data. This led both to the publication in 1885 of the *Record of Family Faculties*, which was in effect a long questionnaire for distribution to the medical profession, and, in the same year, to the *Life History Album* which was devised by a committee of the British Medical Association under the direction of Galton.<sup>32</sup> The *Life History Album* was designed to be bought by parents on the birth of a child and included a schedule of measurements and observations on the child's



A GROUP OF THE MORE MANLY AND INTELLIGENT PRISONERS (ELMIRA).

Fig. 7: From *Herlock Ellis: 'The Criminal'*.



A GROUP OF SEXUAL PERVERTS (ELMIRA).

Fig. 8: From *Herlock Ellis: 'The Criminal'*.

physical and mental development together with the provision for a continuous photographic record. Whilst it was intended that copies of the statistical information would be sent to the BMA, for Galton the *Life History Album* had an additional and significant purpose:

The investigation of human eugenics – that is, of the conditions under which men of a high type are produced – is at present extremely hampered by the want of family histories, both medical and general, extending over three or four generations. . . . Believing, as I do, that human eugenics will become recognised before long as a study of the highest importance, it seems to me that no time ought to be lost in encouraging and directing a habit of compiling personal and family histories.<sup>21</sup>

As Galton clearly recognised, there was a need for the general dissemination of knowledge of the laws of heredity if the principles of eugenics were to

gain any significant level of acceptance in society. The *Life History Album* and similar ventures were intended to yield the statistical data upon which the science of eugenics depended but in addition they were equally necessary to the eventual implementation of a eugenics practice:

The act of systematically collecting records of thriving families would have the further advantage of familiarising the public with the fact that eugenics had at length become a serious subject of scientific study by an energetic society. . . . The first and main point is to secure the general intellectual acceptance of eugenics as a hopeful and most important study. Then let the principles work into the heart of the nation, who will gradually give practical effect to them in ways that we may not wholly foresee.<sup>22</sup>

Galton was never to relinquish his interest in photography. Until his death in 1911 he continued to develop its uses both as an analytical technique



and as a mode of documentation.<sup>25</sup> But the years between 1877 and 1884 mark the most intensive period of his experimentation and exploration of the medium and its applications. It was also during this period that Galton evolved the methods of analysis and statistical techniques designed to measure the incidence of inherited characteristics which were to have a substantial bearing upon all of his later work and that of others within the eugenics movement. Galton's involvement with photography must be seen in relation to these requirements; it developed out of a specific need to trace and define the manifestations of innate and hereditary differences of human faculties within physiognomical characteristics. But in order for photography to function in this capacity it had to fulfil the requirements of a genuine scientific practice. Galton was in no doubt as to the merits of photography in this respect. It offered, as he put it, 'the assurance of truth'. Composite photography, which he once referred to as a system of 'pictorial statistics', was to be valued because of 'its mechanical precision, being subject to no errors beyond those incidental to all photographic production'.<sup>26</sup> The credibility of eugenics and its claims for the necessity of social reforms rested upon the demonstration that it was a legitimate science. It had to be seen that eugenics was consistent with 'facts' rather than with theory and this involved the development of modes of enquiry which were impeccably empirical and naturalistic. Openly based upon detailed and extensive research and grounded within mathematical and statistical methods, the conclusions of eugenics seemed beyond impeachment.

However, recent studies have suggested that the development of eugenics, its content and its methods, were inextricably bound to specific ideological class interests. Donald MacKenzie has suggested that eugenics offered a theory of society which predominantly corresponded to the interests and experiences of the middle classes and, in particular, to those who are most usually referred to as the 'professional middle class'.<sup>27</sup> The distinction is a vital one. Those who stood to gain most from eugenics policies, and those who contributed to and supported its development, belonged to an expanding sector of scientific, technical, governmental and civil functions. Eugenics offered a legitimisation of the social status of these occupations and, as we shall shortly see, the reasons for their enhancement and expansion. Insofar as eugenics proposed the reordering of society in accordance with the distribution of mental abilities and cognitive skills amongst the population, it placed a high value on those whose contribution to society was based upon intellectual expertise rather than the ownership of capital or the supply of labour. The professional middle class was to be clearly differentiated from both the bourgeoisie and the proletariat by its possession of a systematic

and accredited body of knowledge. In this context, the 'professionalisation' of science in the nineteenth century was of vital strategic importance. It enabled the legitimisation of a certain paradigm of knowledge based upon the methodological procedures of a thoroughgoing naturalism and it then established the indispensability of such forms of knowledge to the functions of a modern society. This was especially so for eugenics, as MacKenzie has noted:

... the eugenic solution to social problems, employing as it would the statisticians' figures, the biologists' studies, the psychologists' tests, the social workers' case reports and ultimately the psychiatrists' custodial care or the surgeons' scalpel, was one which would give potentially full play to the skill of the developing scientific profession.<sup>28</sup>

The power which accrued to the professional middle class in the latter half of the nineteenth century was based upon its ownership of cultural rather than economic capital and the control which it exercised over the production of increasingly specialised forms of knowledge. But the value of much of its professional expertise could only be realised through the development of new functions and practices and these could only be made available within a general expansion of the machinery of the modern State. Eugenics, in particular, envisaged a dominant role for a new range of professional functionaries in the employment of a modern State bureaucracy organised in accordance with eugenics principles. It has been popular to see all post-Darwinian social theory in the late nineteenth century as influenced, to a greater or lesser extent, by a philosophy of laissez-faire utilitarianism and economic individualism and, consequently, to argue that this inevitably led to the renunciation of the involvement of the State in both economic and social spheres. It is quite evident, however, that often there was a co-existence and in some cases compatibility between a view of society which was fundamentally individualistic and the support of state intervention in some areas. To an extent this is also true of eugenics where an unmitigated commitment to a doctrine of laissez-faire would have been inexpedient since it would have effectively undermined the potential use of eugenics expertise. Eugenics, after all, was bound to an ideology of social change and 'progress'; in this lay its appeal to socialists and radical conservatives alike. An expansion of the functions of the State may have been undesirable but it was necessary as a response to the control and eventual elimination of the social problems which eugenics had identified.

Its renunciation of a doctrine of laissez-faire, and its call for the greater involvement of the State in social planning and administration, may have been the principle attraction of eugenics for some

varieties of 'socialism' but this did not mean that it was irreconcilable to the needs of capitalism.<sup>39</sup> As Philip Abrams has argued:

Eugenicists . . . were caught up in the general ideological crisis of the late century. Seeking to account for the facts of economic and social disorder on the basis of specifically biological training, they brought the principles of genetics to bear on contemporary vital statistics and discovered, as a most or less imminent danger, the prospect of race degeneration. Eugenics, when its history is written, will have to be treated in close relation to political economy. By discovering a systematic reversal of the laws of social organisation, specifically the law of natural selection, eugenics afforded an ideologically generalized interpretation of the condition of Britain in which the assumptions of political economy were maintained intact . . . Eugenics culminated in demands not for a new social order but for the reconstitution of the old order at a higher level of efficiency.<sup>40</sup>

In a period of volatile economic fluctuations amid the dominant trend towards industrialisation, eugenics has to be considered ultimately as a response to the crisis which capitalism faced in the reproduction of a surplus capacity of labour power. It offered an immediate and positive solution to the problem of the increasing number of the unemployed and unemployable destitute which would also have the effect of making the labour force 'fitter' and more suited to its task, and thus make capital more productive. This essay has attempted to show that photography did not stand outside of these operations of power. Its applications across a range of scientific practices, including eugenics, bound its existence firmly to the prevailing patterns of domination and subordination within the economic and social relations of capitalism in the late nineteenth century.

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The specificity of photography always lies precisely in that aspect of its functioning which is the production of discursive meaning. The problem is that one is required to think not only of what is specific to the various modes of photography as discursive practices but also of their relation to other levels of the social formation; to the cultural, the political, the economic. To understand the meanings embedded within the photograph is to take account of how a photographic practice is constituted at the conjuncture of cultural, economic and political forces operating within the social formation at any one time. We cannot regard this as the sociological 'background' to photography, for that would be merely to reinstate the artifact, the photograph as object, as the bearer of some essential truth, autonomous of the social formation from which it derives. Rather the primary concern needs to be with how the photograph comes to be

what it is because of these relations; to recognise them not as 'external' facts about the photograph's existence but as real determinations upon the very nature of that existence. The forms which photography takes, and the meanings which such forms engender, are thus always to be seen as contingent with other social practices which, strictly speaking, exist outside of photography. The relation of these practices to photography may be highly mediated and complex such that they cannot be readily identified with the photographic image itself. Yet it is the case that they act upon the photograph as a series of determinations and limits within which the production, distribution and reception of the image takes place. As practices in themselves they constitute the ideological and institutional spaces which determine the organisation of photographic images as particular kinds of 'texts' and their readings. For all its evident facticity, the photograph does not possess intrinsic values or meanings, nor can it determine the manner of its reception and understanding. Photographic meaning is always the result of socially and historically specific functions which the photograph serves in the course of its appropriation by the various institutions and practices which put it to work.

#### References

1. Francis Galton, 'Photographic chronicles from childhood to age' in *Fortnightly Review*, 10, 1882, pp. 26-31.
2. John Yagg was the first to indicate the importance of these issues and his contribution to subsequent research in this area, including the present essay, has remained seminal. See particularly John Yagg, 'Power and Photography' in *Social Education*, No. 26, Autumn 1980, and No. 27, Winter 1980.
3. I am indebted here to recent work in the sociology of science and, more generally, the sociology of knowledge. See particularly E. Barnes, *Interest and the Growth of Knowledge*, Routledge and Kegan Paul, 1977; and E. Barnes and S. Shapiro (eds.), *Natural Order: Historical Studies of Scientific Culture*, Sage Publications, 1978.
4. See Barnes, *op. cit.* pp. 4-20.
5. See John Yagg, 'The Burden of Representation', in *Topical Photography Journal*, No. 14, 1984, p. 11.
6. The definition of the term 'practice' as used here is that offered by Louis Althusser. See 'On the Materialist Dialectic' in *For Marx*, New Left Books, 1977, pp. 166-7.
7. For the history of sociology in this country see P. Abrams, *The Origin of British Sociology*, University of Chicago Press, 1968. For an account of the institutional beginnings of anthropology see G. W. Stocking, 'What's in a Name? The Origins of the Royal Anthropological Institute 1871-71', in *MAN* (new series), vol. 6, No. 3, 1976; also R. Binns, 'Race, Politics and Science: The Anthropological Society of London in the 1880's', in *Victorian Studies*, No. 22, Autumn 1979, pp. 21-50.
8. See T. W. Heyck, *The Transformation of Intellectual Life in England*, Croom Helm, 1982.
9. Michel Foucault's demonstration of the relation of power and knowledge as intrinsic to the operations of specific discursive practices marks a significant development in the analysis of the nature and forms of power in capitalist societies to which this essay is indebted. See particularly Michel Foucault, *Discipline and Punish*, Penguin, 1977.
10. See J. W. Burrow, *Evolution and Society*, Cambridge University Press, 1968; and D. R. Oldroyd, *Darwinian Impact*, Open University Press, 1980.

11. For an analysis of the relation between photography and anthropology and its uses in the definition and classification of racial types see my essay, 'Classified Subjects' in *Text/Photographic Journal*, No. 14, pp. 30-37, 1984.

12. Galton's interest in the significance of heredity to the differences in intellectual ability can be traced to the 1860s. See particularly 'Hereditary Talent and Character', *Macmillan's Magazine*, 12, 1863, pp. 117-66, 118-27; *Hereditary Genius*, Macmillan, 1869.

13. *Japsinis into Human Family and its Development*, second edition, Dent and Co., 1937.

14. 'Eugenics: its Definition, Scope and Aims', *Sociological Papers*, 1, 1905, p. 30.

15. On several occasions Galton extended his analysis of hereditary character to the comparison of racial differences. See particularly *Hereditary Genius*, op. cit.; and *Human Family*, op. cit. On the relation between eugenics and race see Nancy Soper, *The Idea of Race in Science*, Macmillan, 1962, chapter five.

16. Francis Galton, 'Hereditary Improvement', *Fraser's Magazine*, 7, 1873, pp. 126-30.

17. Gareth Sirdman Jones, *Oxford London*, Clarendon Press, 1971.

18. *Human Family*, op. cit., p. 26.

19. In the mid 1870s Galton initiated, or was clearly involved in, a number of anthropological surveys of the British Isles. The most ambitious project, however, was the Anthropometric Laboratory, part of the International Health Exhibition held in South Kensington in 1884 and which later moved to the South Kensington Museum, which Galton organised and equipped at his own expense. See F. Galton, 'On the Anthropometric Laboratory at the late International Health Exhibition', in *Journal of the Anthropological Institute*.

20. See 'Address to the Department of Anthropology, Section IV', *British Association Report*, 1877, pp. 94-100. Reprinted in *Nature*, 16, 1877, pp. 344-7.

21. See Havelock Ellis, *The Criminal*, Walter Scott, 1890. Ellis was later a prominent member of the Eugenics Education Society founded in 1907.

22. T. S. Clouston, 'The Developmental Aspects of Criminal Anthropology', in *Journal of the Anthropological Institute*, 23, 1893/4, pp. 215-224.

23. 'Address to the Department of Anthropology', op. cit.

24. Galton stressed that the use of photography called for systematic and regular procedures. For anthropological purposes photographs of the head always needed to be taken full face and in exact profile and, if possible, also from above. He suggested an arrangement of three mirrors surrounding the subject to be photographed so as to reflect the three different views of the head. Since the reflected images would be at the same optical distance from the camera they would all be to the same scale and thus suited for comparison. Galton appears not to have made use of the technique himself although it was taken up by others. The photograph reproduced with this essay is taken from Havelock Ellis, *The Criminal* (1890). The original was taken by Dr Hamilton Wry, physician to the New York State Reformatory, and shows an inmate of Elmira.

25. *Ibid.*

26. Galton first described the technique of composite photography in some detail in 'Composite Portraits', *Journal of the Anthropological Institute*, 8, 1878, pp. 112-48; reprinted in *Nature*, 18, 1878, pp. 97-100,

and in *Photographic News*, 23, 1881, pp. 114-17, 332-33. For various shorter articles relating to composite photography and not referred to here see the complete bibliography of Galton in D. W. Forrest, *Francis Galton: The Life and Work of a Victorian Genius*, Paul Elek, 1974.

27. Galton was briefly to experiment with the application of composite photography to craniometry and this use of the technique was later taken up by others. See F. Galton, 'On the Application of Composite Portraits to Anthropological Purposes', *British Association Report*, 55, 1881, pp. 490-91; and 'Exhibition of Composite Photographs of Skulls by Francis Galton', *Journal of the Anthropological Institute*, 15, 1885, pp. 290-91. Apart from the composite portraits of Jews (see note 28) Galton did not use composite photography to analyse racial types. I have found only one other instance of its use for this latter purpose, see Alice C. Fletcher 'Composite Portraits of American Indians', *Science*, 3, No. 130, 1886.

28. All of Galton's original photographic material and composite photographs are preserved in the Galton Collection, University College, London. For the composite portraits of Jews see Joseph Jacobs 'On the Racial Characteristics of Modern Jews', *Journal of the Anthropological Institute*, 15, 1885, pp. 21-62; also F. Galton 'Photographic Composites', *Photographic News*, 29, 1885, pp. 254-61, 259-60, 268-9.

29. F. Galton and F. A. Mahomed 'An Inquiry into the Physiognomy of Phobias by the Method of Composite Portraits', *Gap's Hospital Report*, 23 Feb. 1882.

30. 'Application of Composite Photographic Portraits to the Production of Ideal Family Likenesses', 1882. Amongst the respondents to Galton's request was the photographer Henry Peach Robinson who supplied photographs of his three daughters. Robinson was very impressed with the final composite portrait (Galton Papers 158/18). A reproduction of the three originals and the final composite photograph appears in D. W. Forrest, op. cit., opposite p. 85.

31. 'Photographic Chronicles from Childhood to Age', *Fortnightly Review*, 181, 1882, pp. 26-31.

32. Both were published by Macmillan.

33. *Human Family*, op. cit., p. 17.

34. 'Eugenics: its Definition, Scope and Aims', op. cit., p. 30.

35. In the late 1890s Galton attempted to reverse the process of composite photography whereby it would be possible to isolate and retain the particular characteristics of the individual from those features which were common to the type. The purpose of such a process would be to measure the degree of difference between the individual and the type. His experiments in this direction were not, however, conclusive. See 'Analytical Photography', *The Photographic Journal*, 23, 1900, pp. 123-38.

36. 'Composite portraits', op. cit., p. 134.

37. See D. MacKenzie 'Eugenics in Britain', *Social Studies of Science*, 6, 1976, pp. 499-532; and G. B. Searle 'Eugenics and Class', in C. Wilson (ed.), *Biology, Medicine and Society 1880-1980*, Cambridge University Press, 1981, pp. 217-282.

38. D. MacKenzie, review article, *British Journal for the History of Science*, 11, 1978, p. 90.

39. Both MacKenzie and Searle have dealt with the place of eugenics in Fabian socialism. See note 37.

40. Philip Abrams, op. cit., p. 123.