

## HEREDITARY IMPROVEMENT.

By FRANCIS GALTON.

IT is freely allowed by most authorities on heredity, that men are just as subject to its laws, both in body and mind, as are any other animals, but it is almost universally doubted, if not denied, that an establishment of this fact could ever be of large practical benefit to humanity. It is objected that, philosophise, as you will, men and women will continue to marry as they have hitherto done, according to their personal likings; that any prospect of improving the race of man is absurd and chimerical, and that though enquiries into the laws of human heredity may be pursued for the satisfaction of a curious disposition, they can be of no real importance. In opposition to these objections, I maintain, in the present essay, that it is feasible to improve the race of man by a system which shall be perfectly in accordance with the moral sense of the present time. I shall first describe the condition, such as I believe it to be, of the existing race of man, and will afterwards propose a scheme for its improvement whose seeds would be planted almost slowly but steadily grow, until it had transformed the nation. If the ordinary doctrines of heredity in a broad sense be true, the scheme in question must, as it appears to me, begin to show vigorous life so soon as the mass of educated men shall have learnt to appreciate their truth. But if the doctrines be false, then all I build upon them is of course fallacious.

The bodily and mental condition of every man are, in part, the result of his own voluntary and bygone acts; but experience teaches us that they are also shaped by two other agencies, for neither of which he is responsible; the one, the constitu-

tional peculiarities transmitted to him by inheritance, and the other, the various circumstances to which he has been perforce subjected, especially in early life. Now, in this essay I do not propose to allude to ordinary education, family and national tradition, and other similar moral agencies of high importance. I leave them for the present, to one side; the residue with which alone I am about to deal, may be concisely and sufficiently expressed by the words 'race' and 'nurture.' It is to the consideration of the first of these that the following pages are chiefly devoted; but not entirely so, for I acknowledge that we cannot wholly disentangle their several effects. An improvement in the nurture of a race will eradicate inherited disease; consequently, it is beyond dispute that if our future population were reared under more favourable conditions than at present, both their health and that of their descendants would be greatly improved. There is nothing in what I am about to say that shall underrate the sterling value of nurture, including all kinds of sanitary improvements; nay, I wish to claim them as powerful auxiliaries to my cause; nevertheless, I look upon race as far more important than nurture. Race has a double effect, it creates better and more intelligent individuals, and these become more competent than their predecessors to make laws and customs, whose effects shall favourably react on their own health and on the nurture of their children. The merits and demerits of different races is strongly marked in colonies, where men begin a new life, to a great degree detached from the influences under which they had been reared. Now we may watch a band of Englishmen, subjected to

no regular authority, but attracted to some new gold-digging, and we shall see that law and order will be gradually evolved, and that the community will purify itself and become respectable, and this is true of hardly any other race of men. Constitutional stamina, strength, intelligence, and moral qualities cling to a breed, say of dogs, notwithstanding many generations of careless nurture; while careful nurture, unaided by selection, can do little more to an inferior breed than eradicate disease and make it good of its kind. Those who would assign more importance to nurture than I have done, must concede that the sanitary conditions under which the mass of the population will hereafter live, are never likely to be so favourable to health as those which are now enjoyed by our wealthy classes. The latter may make many mistakes in matters of health; but they have enormous residual advantages. They can command good food, spacious rooms, and change of air, which is more than equivalent to what the future achievements of sanitary science are likely to afford to the mass of the population. Yet how far are our wealthier classes from the secure possession of those high physical and mental qualities which are the birthright of a good race. Whoever has spent a winter at the health-resorts of the South of France, must have been appalled at witnessing the number of their fellow-countrymen who are afflicted with wretched constitutions, while that of the sickly children, narrow-chested men, and fragile, delicate women who remain at home, is utterly disproportionate to the sickly and misshapen contingent of the stock of any of our breeds of domestic animals.

I need not speak in detail of the many ways in which the forms of civilisation, which have hitherto prevailed, tend to spoil a race, because they must, by this time, have

become familiar to all who are interested in heredity; it is sufficient just to allude to two of the chief among those which are now in activity. The first is, the free power of bequeathing wealth, which interferes with the salutary action of natural selection, by preserving the wealthy, and by encouraging marriage on grounds quite independent of personal qualities; and the second is the centralising tendency of our civilisation, which attracts the abler men to towns, where the discouragement to marry is great, and where marriage is comparatively unproductive of descendants who reach adult life. In a paper just communicated to the Statistical Society, I have carefully analysed and discussed the census returns of 1,000 families of factory operatives in Coventry, and of the same number of agricultural labourers in the neighbouring small rural parishes of Warwickshire, and find that the former have little more than half as many adult grandchildren as the latter. They have fewer offspring, and of those few a smaller proportion reach adult life, while the two classes marry with about equal frequency and at about the same ages. The allurements and exigencies of a centralised civilisation are therefore seriously prejudicial to the better class of the human stock, which is first attracted to the towns, and there destroyed; and a system of selection is created whose action is exactly adverse to the good of a race. Again, the ordinary struggle for existence under the bad sanitary conditions of our towns, seems to me to spoil, and not to improve our breed. It selects those who are able to withstand zymotic diseases and impure and insufficient food, but such are not necessarily foremost in the qualities which make a nation great. On the contrary, it is the classes of a coarser organisation who seem to be, on the whole, most favoured under this principle of selection, and who sur-

vive to become the parents of the next generation. Visitors to Ireland after the potato famine generally remarked that the Irish type of face seemed to have become more prognathous, that is, more like the negro in the protrusion of the lower jaw; the interpretation of which was, that the men who survived the starvation and other deadly accidents of that horrible time, were more generally of a low and coarse organisation. So again, in every malarious country, the traveller is pained by the sight of the miserable individuals who inhabit it. These have the pre-eminent gift of being able to survive fever, and therefore, by the law of economy of structure, are apt to be deficient in every quality less useful to the exceptional circumstances of their life. The reports of the health of our factory towns disclose a terrible proportion of bad constitutions and invalidism among the operatives, as shown by intermitting pulse, curved spine, narrow chests, and other measurable effects; and at the same time we learn from the census that our population is steadily becoming more urban. Twenty years ago the rural element preponderated; ten years ago the urban became equal to it; and now the urban is in the majority. We have therefore much reason to bestir ourselves to resist the serious deterioration which threatens our race.

I have hitherto addressed myself to the purely physical qualities of mankind, on the importance of which it would have been difficult to have sufficiently insisted a few years ago, when there was a prevailing feeling that the mind was everything and the body nothing. But a reaction has set in, and it has become pretty generally recognised that unless the body be in sound order, we are not likely to get much healthy work or instinct out of it. A powerful brain is an excellent thing, but it requires for its proper maintenance a good pair of lungs, a

vigorous heart, and especially a strong stomach, otherwise its outcome of thought is likely to be morbid. This being understood, I will proceed to the mental qualities of our race.

I have written much in my work on *Hereditary Genius* about the average intellect of modern civilised races being unequal to cope with the requirements of the mode of life which circumstances have latterly imposed upon them, and much more might be said on the same subject. The advance in means of communication has made large nations or federations a necessity, whose existence implies a vast number of complicated interests and nice adjustments, which require to be treated in a very intelligent manner, or will otherwise have to be brutally ordered by despotic power. We have latterly seen that the best statesmen of our day are little capable of expressing their meaning in intelligible language, so that political relations are apt to become embroiled by mere misunderstanding of what is intended to be conveyed. In no walk of civilised life do the intellects of men seem equal to what is required of them. It is true that Anglo-Saxons are quite competent to grapple with the everyday problems of small communities, but they have insufficient ability for the due performance of the more difficult duties of citizens of large nations. Consequently, the functions of men engaged in trades and professions of all kinds are adjusted to a dangerously low standard, and the political insight of the multitude goes little deeper than the surface, and is applied in few directions except those to which their guides have pointed. Great nations, instead of being highly organised bodies, are little more than aggregations of men severally intent on self-advancement, who must be cemented into a mass by blind feelings of gregariousness and reverence to mere rank,

mere authority, and mere tradition, or they will assuredly fall asunder.

As regards the moral qualities, which are closely interwoven with the intellectual, we cannot but observe the considerable effect which the influence of many generations of civilised life has already exercised upon the race of man. It has already bred out of us many of the wild instincts of our savage forefathers, and has given us a stricter conscience and a larger power of self-control than, judging from the analogy of modern savages, they appear to have had. The possibility of eradicating instinctive wildness, and of introducing an instinctively affectionate disposition into any breed of animals, is clearly proved by what has been effected in dogs. The currish and wolfish nature of such as may be seen roaming at large in the streets of Eastern towns, has been largely suppressed in that of their tamed descendants, who, after many generations of selection and friendly treatment, have also acquired the curious innate love of man to which Mr. Darwin drew attention. All this gives hope for the future of our race, especially if 'viriculture' be possible, notwithstanding that our present moral nature is as unfitted for a high-toned civilisation as our intellectual nature is unfitted to deal with a complex one. It is curious to observe the great variety in the morals of the human race, such as have been delineated by Theophrastus, La Bruyère, and the phrenologists. It seems to me that natural selection has had no influence in securing dominance to the noblest of them, because in the various tactics of the individual battle for life, any one of these qualities in excess may be serviceable to its possessor. But the case would be very different in those higher forms of civilisation, vainly tried as yet, of which the notion of personal property is not the foundation, but which are, in honest

truth, republican and co-operative, the good of the community being literally a more vivid desire than that of self-aggrandisement or any other motive whatever. This is a stage which the human race is undoubtedly destined sooner or later to reach, but which the deficient moral gifts of existing races render them incapable of attaining. It is the obvious course of intelligent men—and I venture to say it should be their religious duty—to advance in the direction whither Nature is determined they shall go; that is, towards the improvement of their race. Thither she will assuredly goad them with a ruthless arm if they hang back, and it is of no avail to kick against the pricks. We are exceedingly blind to the ultimate purposes for which we have come into life, and we know that no small part of the intentions by which we are most apt to be guided, are mere illusions. If, however, we look around at the course of nature, one authoritative fact becomes distinctly prominent, let us make of it what we may. It is, that the life of the individual is treated as of absolutely no importance, while the race is treated as everything, Nature being wholly careless of the former except as a contributor to the maintenance and evolution of the latter. Myriads of inchoate lives are produced in what, to our best judgment, seems a wasteful and reckless manner, in order that a few selected specimens may survive, and be the parents of the next generation. It is as though individual lives were of no more consideration than are the senseless chips which fall from the chisel of the artist who is elaborating some ideal form out of a rude block. We are naturally apt to think of ourselves and of those around us that, being not senseless chips, but living and suffering beings, we should be of primary importance, whereas it seems perfectly clear that our individual lives are

little more than agents towards attaining some great and common end of evolution. We must loyally accept the facts as they are, and solace ourselves with such hypotheses as may seem most credible to us. For my part, I cling to the idea of a conscious solidarity in nature, and of its laborious advance under many restrictions, the Whole being conscious of us temporarily detached individuals, but we being very imperfectly and darkly conscious of the Whole. Be this as it may, it becomes our bounden duty to conform our steps to the paths which we recognise to be defined, as those in which sooner or later we have to go. We must, therefore, try to render our individual aims subordinate to those which lead to the improvement of the race. The enthusiasm of humanity, strange as the doctrine may sound, has to be directed primarily to the future of our race, and only secondarily to the well-being of our contemporaries. The ants who, when their nest is disturbed, hurry away each with an uninteresting looking egg, picked up at hazard, not even its own, but not the less precious to it, have their instincts curiously in accordance with the real requirements of Nature. So far as we can interpret her, we read in the clearest letters that our desire for the improvement of our race ought to rise to the force of a passion; and if others interpret Nature in the same way, we may expect that at some future time, perhaps not very remote, it may come to be looked upon as one of the chief religious obligations. 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 that the highest action of all is to provide a vigorous, national life, and that one practical and effective way in which individuals of feeble consti-

tution can show 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 come 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 and ignoble instincts, and to breed in those which are vigorous and noble and social.

The precise problem I have in view, is not only the restoration of the average worth of our race, debased as it has been from its 'typical level' by those deleterious influences of modern civilisation to which I have referred, but to raise it higher still. It has been depressed by those mischievous influences of artificial selection which I have named, and by many others besides. Cannot we, I ask—and I will try to answer the question in the affirmative—introduce other influences which shall counteract and overbear the former, and elevate the race above its typical level at least as much as the former had depressed it? I mean by the phrase 'typical level' the average standard of the race, such as it would become in two or three generations if left unpruned by artificial selection, and if reared under what might be accepted as fair conditions of nurture and a moderate amount of healthy, natural selection. It is to be recollected that individuals are not the offspring of their parents alone, but also of their ancestry to very remote degrees, and that although by a faulty system of civilisation the average worth of a race may become depressed, it has nevertheless an inherent ancestral power of partly recovering from that depression, if a chance be given it of doing so. It has, on the one hand, the advantage of the civilised habits ingrained into its nature, and, on the other hand, it may rise above the abnormal state of depression to

which the evil influences of the artificial selection of our modern civilisation have temporarily reduced it.

In my work on *Hereditary Genius* I entered at considerable length upon the classification of men in different grades of natural ability, separated by equal intervals, and showed how we might estimate the proportionate numbers of men in each of them, by availing ourselves of a law, whose traces are to be met with in all the variable phenomena of nature. For example, it will be found that we may divide any body of individuals into four equal groups, of which two shall consist of mediocrities, and the other two shall be alike but opposite, as an object floating in water is to its reflection, the one containing all the grades above mediocrity up to the highest, and the other all below mediocrity down to the lowest. I do not say that this law is strictly applicable to nations where many individuals are diseased in some definite manner, because the essence of the law is, that the general conditions should be of the same kind throughout. On the other hand, disease and health are for the most part due to little more than different grades of constitutional vigour and of sanitary conditions, and, so far, the nations will fall strictly within the range of the law, which I therefore employ as a useful approximation to the truth. My hope is, that the average standard of a civilised race might be raised to the average standard of the pick of them, as they now are, at the rate of one in every four. It will be clearly understood by those familiar with the law of deviation from an average, that the distribution of ability in a race so improved, would be very different to that of the pick of the present race, though their average worth was the same. The improved race would have its broad equatorial belt of mediocrities, and its deviations upwards and downwards,

narrowing to delicate cusps; but the vanishing-point of its baseness would not reach so low as at present, and that of its nobleness would reach higher. On the other hand, the pick of our present race would not be symmetrically arranged, but the worst of them would be the most numerous, and the form of the whole body, when classified, would be that of a cone resting on its base, whose sides curved upwards to a sharp point. I find it impossible to explain, without repeating what I have already written, in *Hereditary Genius* (p. 343), the enormous advantages that would follow the elevation of our race through so moderate a range as that I have described. It chiefly consists in the sweeping away of a legion of ineffectives, and in introducing in very much greater proportions the number of men of independent and original thought. It is those men, who form the fine point of the upward cusp, who are the salt of the earth, and who make nations what they are; now the section of the cusp broadens as it descends, therefore if the whole affair be pushed upwards, so to speak, ever so little, the numbers of the men of the same absolute value become very largely increased.

I will endeavour to give an idea of the result of a selection at the rate of 1 in 4 of the inferior specimens of a civilised race, and will take my example from France, because the quality of the nation is well ganged by that of the annual body of youthful conscripts, who are carefully examined, and whose characteristics are minutely classified. It is better not to take too recent a year, as some persons believe the French race to have deteriorated of late, so I will refer to 1859, of which I happen to have the *Compt-rendu sur le Recrutement de l'Armée* in my library. Speaking in round numbers, a quarter of a million of conscripts were examined in that year, and no less than 30 per cent.

of that number were rejected as unfit for the army. Six per cent. were too short, being under the puny regulation height of 5 feet 5 inches, and a large proportion of these—say one-half, or 3 per cent.—must be considered as unfit citizens in other respects than being unfitted for the muscular work required in the army. Not many were incapacitated by accident, as by blindness or deafness resulting from injury, or by rupture; but of these, again; only a small portion come justly under that head. I am assured that if a person has hereditary predisposition to deafness, slight accidents, such as a blow on the head, or a bad cold, which would be comparatively harmless to other people, will frequently affect and ruin his hearing; and the same is the case with the eyesight and every other function. In addition, we must recollect that many accidents are the result of stupidity and slowness. Of the injuries by the effects of which youths were unfitted for the army, I feel sure that less than half should be ascribed to pure accident, and that of the 30 per cent. who were rejected for all causes, not more than 3 per cent. should be allowed as coming under that head. Adding this to what we have already excepted out of those who were considered too short, there

remain 24 per cent. who were diseased or crippled or puny. In round numbers, one-quarter of the French youths are naturally and hereditarily unfitted for active life.

I will now turn to the other end of the scale of ability, to see what the quarter of a nation is like who are picked out as the best, and I do not know a better example to cite than one which I recently witnessed with great interest; it was on board the *St. Vincent* training ship for seamen for the Royal Navy, which is stationed at Portsmouth. I was informed that out of every three or four applicants not more than one was, on the average, accepted, the applicants themselves being in some degree a selected class. The result was, that when I stood among the 750 boys who composed the crew, it was clear to me that they were decidedly superior to the mass of their countrymen. They showed their inborn superiority by the heartiness of their manner, their self-respect, their healthy looks, their muscular build, the interest they took in what was taught them, and the ease with which they learnt it. A single year's training turns them out accomplished seamen in a large number of particulars. I give in a foot-note<sup>1</sup> the conditions which

<sup>1</sup> Each boy must bring a proper certificate of character and declaration of age. The age of admission is between 15 and 16½. The agreement is to serve in the Navy up to the age of 28. No boys are received from reformatories or prisons, nor if they have been committed before a magistrate. The other requirements are:—

If their age is between	Their height without shoes must be at least	And their measurement round the chest must be at least
15 and 15½	4 feet 10½ inches	29 inches
15½ and 16	4 .. 11½ ..	29½ ..
16 and 16½	5 .. 1 inch	30 ..

They must be able to read and write fairly; be strong, healthy, well grown, active, and intelligent; free from all physical malformation; never have had fits, and must be able to pass a strict medical examination by the surgeons of the ship. Their teeth must be good, that they may be able to bite biscuit; at the same time, we must recollect that bad teeth are to some degree the sign of a bad constitution. The applicants come from various directions, and, though a majority of them do not know the regulations for admission, yet, as many of them do, and as all have to bring certificates of character, the applicants, on the average, must be considered to be in some slight degree a selected class.

they must fulfil to be qualified for admission; they seem to have been drawn up in an excellent spirit, and to produce most happy results. If the average English youth of the future could be raised by an improvement in our race to the average of those on board the *St. Vincent*, which is no preposterous hope, England would become far more noble and powerful than she now is. The general tone of feeling, in short, the 'Mrs. Grundy,' of the nation would be elevated, the present army of ineffectives which clog progress would disappear, and the deviations of individual gifts towards genius would be no less wide or numerous than they now are; but by starting from a higher vantage-ground they would reach proportionately farther.

It is idle to lament the ill condition of our race without bestirring ourselves to find a remedy, but it requires some audacity to publicly propose schemes, because the world at large is incredulous of the extent of the ill, while most of those who are more correctly informed feel little faith in the feasibility of remedying it. Nevertheless, the subject is one which the public ought to be accustomed to hear discussed without surprise or prejudice, and I trust that my own remarks will attract the attention of some few competent persons by whom they may be helpfully criticised. I will describe what I have to propose from the very beginning. It is entirely based on the assumption that the ordinary doctrines of heredity are, in a broad sense, perfectly true; also that the popular mind will gradually become impressed with a conviction of their truth, owing to the future writings and observations of many enquirers; and lastly, that we shall come to think it no hardheartedness to favour the perpetuation of the stronger, wiser, and more moral races, but shall conceive ourselves to be carrying out the obvious intentions of Nature, by making our

social arrangements conducive to the improvement of their race.

There is a vast difference between an intellectual belief in any subject and a living belief which becomes ingrained, sometimes quite suddenly, into the character. I do not venture to ask that the doctrines of heredity shall be popularly accepted in the latter sense, in order that the seeds of my scheme should be planted, but I am satisfied if they shall come to be believed in with about the same degree of persuasion and as little fervour as are those, at the present time, of sanitary science. That is enough to enable the scheme to take root and to grow, but I cannot expect it to flourish until the popular belief shall have waxed several degrees warmer.

My object is to build up, by the mere process of extensive enquiry and publication of results, a sentiment of caste among those who are naturally gifted, and to procure for them, before the system has fairly taken root, such moderate social favour and preference, no more and no less, as would seem reasonable to those who were justly informed of the precise measure of their importance to the nation. I conclude that the natural result of these measures would be to bind them together by a variety of material and social interests, and to teach them faith in their future, while I trust to the sentiment of caste to secure that they shall intermarry among themselves about as strictly as is the custom of the nobility in Germany. My proposition certainly is not to begin by breaking up old feelings of social status, but to build up a caste *within* each of the groups into which rank, wealth, and pursuits already divide society, mankind being quite numerous enough to admit of this sub-classification. There are certain ingenious persons who examine the records of unclaimed dividends at the Bank of England, and search for the heirs of the original owners, and inform them

(for a consideration) to their advantage. My object is to have the English race explored, and their now unknown wealth of hereditary gifts recorded, and that those who possess such a patrimony should be told of it. I leave it to the natural impulses by which mankind are guided, to insure that such wealth should not continue to be neglected, any more than any other possession unexpectedly made known to them. Great fortunes are commonly observed to coalesce through marriage, and members of aristocracies seldom make alliances out of their order, except to gain wealth. Is it less to be expected that those who become aware that they are endowed with hereditary gifts, should abstain from squandering their patrimony by marrying out of their caste? I do not for a moment contemplate coercion as to whom any given person should marry; such an idea would be scouted now-a-days almost as much as that of polygamy, or of infanticide. But it is quite conformable to the customs of this century to employ social considerations to effect what is desirable, and their efficacy in this case would be as great as is needful. The great majority are sure to yield to it, and it is a trifling matter, when we look to general results, if a small percentage refuse obedience. I also lay great stress on the encouragement of the gifted caste to marry early, and to live under healthy conditions, and this I consider would be effected in the manner I shall briefly explain.

The reader will probably find after I have concluded, that the questions chiefly to be discussed (it being understood that my primary suppositions are provisionally granted) are, first, whether the proposed means are adequate to create a caste whose sentiments shall have the character and strength assigned to them; and secondly, whether the existence of such a caste would or would not be in-

tolerable to the country at large, at the time when it had become powerful, but by no means dominant.

I propose as the first step, and the time is nearly ripe for it, that some society should undertake three scientific services: the first, by means of a moderate number of influential local agencies, to institute *continuous* enquiries into the facts of human heredity; the second to be a centre of information on heredity for breeders of animals and plants; and the third to discuss and classify the facts that were collected. I look upon the continuity of the enquiry as very important, from the extreme difficulty I have experienced in ransacking bygone family details, even of recent date. Biographies and pedigrees require contemporaneous touching up, in order that they may be full and trustworthy, and that an adequate accumulation of hereditary facts may in time be formed.

All this is purely scientific work, to the performance of which no reasonable objection can possibly be made, and is intended to tell us in what degree and with what qualification the ordinary doctrines of heredity apply to man. Different persons may expect it to yield different results: that which I expect is, that these doctrines will be fully confirmed in a broad sense, and that an immense amount of supplemental and special information will be gathered. It is entirely on the supposition that these hopes will be verified, that all I have now to say is based. The proposed work is a large one, but not impracticable. Any family or any community could undertake the raw materials for itself, and therefore large districts, or even the entire nation, which is but a collection of such units, could equally do so. However, it would require much enthusiasm in the cause to carry it steadily on, and to discuss the results upon a sufficient scale, but it need not be isolated work. It would naturally fall in

with an undertaking that would commend itself to many, of obtaining a more exact statistical insight into the condition of the nation than we now possess, by working very thoroughly a moderate number of typical districts, as samples of our enormous population. If enquirers existed, there are large numbers of statistical queries which might be most usefully answered. Among others, we want an exact stock-taking of our worth as a nation, not roughly clubbed together, rich and poor, in one large whole, but judiciously sorted, by persons who have local knowledge, into classes whose mode of life differs. We want to know all about their respective health and strength and constitutional vigour; to learn the amount of a day's work of men in different occupations; their intellectual capacity, so far as it can be tested at schools; the dying out of certain classes of families, and the rise of others; sanitary questions; and many other allied facts, in order to give a correct idea of the present worth of our race, and means of comparison some years hence of our general progress or retrogression.

I will now suppose a few more years to have passed, during which time short biographies and pedigrees, illustrated by measurements and photographs, shall have been compiled, of perhaps a thousand or more individuals in each of the districts under investigation. Schoolmasters, ministers, medical men, employers of labour, and the resident gentry, will be applied to, but no blind zeal should be evoked that might arouse prejudice and unreasonable opposition. The facts should be collected quietly, and with the *bonâ fide* object of obtaining scientific data. If the results prove to be such as I have reason to expect, then, but only then, will the conviction begin to establish itself in the popular mind, that the influence of heredity is one of extraordinary

importance. I ask for no anticipatory action, but merely to enquire on a large scale, in a persistent manner, and to allow events to follow in their natural course, knowing full well that if observation broadly confirms the truth of the present doctrines of heredity, quite as many social influences as are necessary will become directed to obtain the desired end.

I trust that I have made my meaning clear thus far, to the effect that I propose no direct steps at first beyond simple enquiry, but that the mere process of carrying on the enquiries will have an incidental influence in creating common interests and mutual acquaintance and friendships among the gifted families in each class of society, such effects naturally resulting in frequent cases of intermarriage. Then I say, the offspring of these intermarriages will have some moderate claim to purity of blood, because their parents and many of their more distant relatives will be gifted above the average; also, the precise family history of each of them will have been preserved, and the foundation laid of a future 'golden book' of natural nobility. Lastly, a mass of information bearing on human heredity will have been collected.

In the meantime (supposing the fundamental truth of all I maintain as regards the doctrine of heredity, and the probability that the improvement of the human race will be considered a duty) the scale on which enquiries are conducted will steadily grow. I should expect that all boys at school will not only be examined and classed, as at present, for their intellectual acquirements, but will be weighed and measured and appraised in respect of their natural gifts, physical and mental together, and that enquiries will, as a matter of course, be made into the genealogies of those among them who were hereditarily remarkable, so that all the most promising

individuals in a large part of the kingdom would be registered, each in his own local centre. A vast deal of work would be, no doubt, thrown away in collecting materials about persons who afterwards proved not to be the parents of gifted children. Also many would be registered on grounds which our future knowledge will pronounce inadequate. But gradually, notwithstanding many mistakes at first, much ridicule and misunderstanding, and not a little blind hostility, people will confess that the scheme is very reasonable, and works well of its own accord. An immense deal of investigation and criticism will bear its proper fruit, and the cardinal rules for its successful procedure will become understood and laid down. Such, for example, as the physical, moral, and intellectual qualifications for entry on the register, and especially as to the increased importance of those which are not isolated, but common to many members of the same family. It will be necessary also to have a clear idea of the average order of gifts to aim for, in the race of the immediate future, bearing in mind that sudden and ambitious attempts are sure to lead to disappointment. And again, the degree of rigour of selection necessary among the parents to insure that their children should, on the average, inherit gifts of the order aimed at. Lastly, we should learn particulars concerning specific types, how far they clash together or are mutually helpful.

Let us now suppose an intermediate stage to be reached, between that of mere investigation and that of an accepted system and practical action, and try to imagine what would occur. The society of which I have been speaking, or others like it, would continually watch the career of the persons whose names were on their register, and those who had aroused so much interest would feel themselves associates of

a great guild. They would be accustomed to be treated with more respect and consideration than others whose parents were originally of the same social rank. It would be impertinent in anyone to assume airs of patronage towards such people: on the contrary, the consideration shown them would naturally tend to encourage their self-respect and the feeling that they had a family name to support and to hand down to their descendants. Again, the society would be ever watchful and able to befriend them. For it would be no slight help to a man to state, on undoubted grounds, that not only is he what he appears, but that he has latent gifts as well. That he is likely to have a healthy life, and that his children are very likely indeed to prove better than those of other people. In short, that he and his family may be expected to turn out yet more creditably than those ignorant of his and his wife's hereditary gifts would imagine. This would make it more easy for him than for others to obtain a settled home and employment in early manhood, and to follow his natural instinct of marrying young. It is no new thing that associations should successfully watch and befriend every member of large communities, and in the present case the kindly interests sure to be evoked in dealing with really worthy and self-helpful people would be so great that I should expect charity of this kind to become exceedingly popular, and to occupy a large part of the leisure of many people. It is quite another thing to patronise paupers, and doing what are commonly spoken of as 'charitable' actions, which, however devoted they may be to a holy cause, have a notorious tendency to demoralise the recipient, and to increase the extent of the very evils which they are intended to cure.

The obvious question arises, Would not these selected people become in-

tolerably priggish and supercilious? Also it will be said, that the democratic feeling is a growing one, and would be directly adverse to the establishment of such a favoured and exceptional class. My answer is, that the individuals in question would not at first have so very much to be conceited about, and that, later on, their value would be generally recognised. They would be good all round, in physique and *morale*, rather than exceptionally brilliant, for many of the geniuses would not 'pass' for physical qualities, and they would be kept in good order by the consciousness that any absurd airs on their part might be dangerous to them. The attitude of mind which I should expect to predominate, would be akin to that now held by and towards the possessors of ancestral property, of moderate value, dearly cherished, and having duties attached. Such a person would feel it a point of honour never to alienate the old place, and he is generally respected for his feeling and liked on his own account. So a man of good race would feel that marriage out of his caste would tarnish his blood, and his sentiments would be sympathised with by all. As regards the democratic feeling, its assertion of equality is deserving of the highest admiration so far as it demands equal consideration for the feelings of all, just in the same way as their rights are equally maintained by the law. But it goes farther than this, for it asserts that men are of equal value as social units, equally capable of voting, and the rest. This feeling is undeniably wrong and cannot last. I therefore do not hesitate in believing that if the persons on the register were obviously better and finer pieces of manhood in every respect than other men, democracy notwithstanding, their superiority would be recognised at just what it amounted to, without envy,

but very possibly with some feeling of hostility on the part of beaten competitors.

Let us now, in our imagination, advance a couple of generations, and suppose a yet more distant time to have arrived, when societies shall have been sown broadcast over the land and have become firmly rooted, and when principles of selection shall have been well discussed and pretty generally established, and when, perhaps, one per cent. of the thirty millions of British people, that is 300,000 individuals, old and young, and of both sexes, shall have their names inserted in the then annually published registers. By this time the selected race will have become a power, a considerable increase will have taken place in the number of families of really good breed, for there will be many boys and girls, themselves above mediocrity, whose parents, uncles on both sides, four grand-parents, several of their great-uncles and cousins, and all their eight great-grandparents, were persons considerably above the average in every respect that fits an individual to be a worthy citizen and a useful and agreeable member of society. I cannot doubt, that at this period a strong feeling of caste would be found developed in the rising generation, for such is the vanity of men, especially in youth, that it is one of the easiest tasks in the world to persuade them that they are in some way remarkable, and, in the supposed case, the persuasion would be well-nigh irresistible. A number of, perhaps, the best informed philosophers in the nation, who are experts in the matter, solemnly aver, after careful enquiry, that the individuals whose names are on the register are, in sober truth, the most valuable boys and girls, or men and women, to the nation. They may give them a diploma, which would virtually be a patent

of natural nobility. They assure them that if they intermarry under certain limitations of type and subclass, which have yet to be studied and framed, their children will be, on the whole, better in every respect than the children of other people—stronger, healthier, brighter, more honest and more pleasant. They tell them that in addition to the old-established considerations of rank and wealth there is another and a higher one, namely, of purity of blood, and that it would be base to ally themselves with inferior breeds. In corroboration of these flattering words, the members of the gifted caste would continue to experience pleasing testimony of a practical kind, for there can be little doubt that one consequence of the continual writing and talking about noble races of men, during many years, would be to increase the appreciation of them. An entry on the register would then become as beneficial as it was a few years since to be born of a family able and willing to push forward their relatives in public life. Queen Elizabeth gave ready promotion to well-made men, and it is no unreasonable expectation that our future landowners may feel great pride in being surrounded by a tenantry of magnificent specimens of manhood and womanhood, mentally and physically, and that they would compete with one another to attract and locate in their neighbourhood a population of registered families.

I will now suppose another not improbable alternative, namely, the result of some democratic hostility to the favoured race. Well, it would gain in cohesion by persecution. If trade unionism chose to look on them as cuckoos in the national nest, they would be driven from the workshops, and be powerfully directed to co-operative pursuits. They would certainly have little inclination to inhabit towns where they were outnumbered and disfavoured, and

would naturally settle in co-operative associations in the country. In other words, the gifted race would be urged into companionship by the pressure of external circumstances, no less strongly than, as I have shown, they would be drawn together by their own mutual attraction; and would be perforce inhabitants of healthy rural districts, and not of unhealthy towns. All this, which is probable enough, would have an immense effect in strengthening the sentiment of caste, in developing the best points of their race, and in increasing its numbers. In these colonies, caste regulations would no doubt rise into existence, and gradually acquire the force almost of religious obligations, to maintain and increase the character of their race, by encouraging early marriage among their more gifted descendants, and by discouraging it among the less gifted. The colonies would become more and more independent as the superiority of their members over the outside world became, in successive generations, more pronounced. Their members would be little likely to associate intimately with persons not of their caste, because they would succeed better by themselves than when other and less effective men were admitted into partnership. They would not only have peculiarly high personal gifts of intelligence and *morale* to carry out co-operative undertakings, but they would also have in many cases special advantages as well. If they wished to found a club for mutual relief in sickness, it would be foolish to allow strangers of a less healthy race to join with them. If it should be a building society, they by themselves would be able to enforce better sanitary regulations than if a body of less intelligent and energetic families were mixed up with them. Their social gatherings would tend to be exclusive, because their interests would be different, and often hostile, to

those of other people, and their own society would be by far the more cultured and pleasant.

It will be understood that the colonies I am describing, would be large enough for all the varied interests of life to find place for their exercise. They would be no mere retreats from a distasteful outside world, but energetic and capable to the higher degree.

The continued intermarriage of members of such colonies seems to me almost a certainty, and so does the happiness which would generally be diffused among them. Here, if anywhere, would a whole population learn to be industrious, like bees or ants, for public ends and not for individual gain. If such communities were established, it would be in them, rather than anywhere else, where those forms of new and higher civilisation, which must hereafter overspread the earth, would be first evolved. If, however, they should be persecuted to an unreasonable extent, as so many able sects have already been, let them take ship and emigrate and become the parents of a new state, with a glorious future.

All I have thus far spoken of would require no endowments, and yet how much could be effected by it. We may, however, expect that endowments commensurate with the greater items of national expenditure would ultimately be assigned to the maintenance and improvement of the best races of man. Our peers enjoy a gross annual income of some nine millions; and that of all other settled property, irrespective of merit, would amount to an enormous sum. It is very possible hereafter, at the time I have been anticipating, that the Legislature under the growing influence of the gifted caste (supposing other customs to remain as they are at present) would enforce some limitation to inheritance, in cases where the heirs were deficient in natural gifts. The fittest would then have a far better chance of

survival than at present, and civilisation, which is now recklessly destructive of high races, would, under more enlightened leadership, employ its force to maintain and improve them. The gifted families would be full of life and hope, and living under more intelligent and favourable sanitary conditions, would multiply rapidly, while the non-gifted would begin to decay out of the land, whenever they were brought face to face in competition with them, just in the same way as inferior races always disappear before superior ones. It is difficult to analyse the steps by which this invariable law has hitherto accomplished itself, and much more difficult is it to guess how it would be accomplished under the conditions here described, but I should expect it would be effected with little severity. 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 maintained 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 to the State, and to have forfeited all claims to kindness.

The objection is sure to be urged against my scheme, that its effects are too remote for men to care to trouble themselves about it. The earlier results will be insignificant in number, and disappointing to the sanguine and ignorant, who may expect a high race to be evolved out of the present mongrel mass of mankind in a single generation. Of course this is absurd; there will be numerous and most annoying cases of reversion in the first and even in the second generation, but when the third generation of selected men has been reached, the race will begin to bear offspring of distinctly purer blood than in the first, and

after five or six generations, reversion to an inferior type will be rare. But is not that too remote an event for us to care for? I reply that the current interests which the scheme would evoke are, as already explained, of a very attractive kind, and a sufficient reward for considerable exertion quite independently of anything else. Its effects would be ever present, clearly visible, of general importance, and of the highest interest, the number of experiments going on at the same time being an equivalent to the slowness with which their results became apparent. Also, it must be recollected that the labourers employed on the foundation of any edifice, have a store of present pleasure in discounting, so to speak, its future development.

But even if the labour were wholly unremunerated by present pleasure, I should not despair, looking at the great works already accomplished under similar conditions. I will cite one example. The forests of Europe<sup>2</sup> extend over enormous tracts. In France, alone, they cover between eight and nine million acres, which equals a region 130 miles long by 100 broad. The chief timber tree in France is oak, and an ordinance which dates from 1669 contains a clause inserted by Colbert that 'in none of the forests of the State shall oaks be felled until they are ripe, that is, are unable to prosper for more than thirty years longer.' This regulation has been strictly attended to up to the present day, and in the mean time forest legislation has grown into an important duty of the State. The same has occurred in Germany, and

the lead of these two countries has been followed by Italy, Prussia, Austria, Sweden, Denmark, and British India. To return to our oaks: the timber is of great value in France, not only for ship building, but on account of the enormous quantity used for parquet floors and wine casks, while, on the other hand, countries which formerly supplied it in abundance, are now running short. In North Germany oaks are rarely permitted to attain a large size, being usually felled before they are 100 years of age, and the fine natural forests of Hungary, Croatia and Slavonia are becoming exhausted; consequently the Government of France strives to favour in every way the growth of fine oak timber and postpones felling the trees until they are fully mature; that is, between the ages of 150 and 180 years.

Is not man worthy of more consideration than timber? If a nation readily consents to lay costly plans for results not to be attained until five generations of men shall have passed away, for a good supply of oak, could it not be persuaded to do at least as much for a good supply of man? Marvellous effects might be produced in five generations (or in 166 years, allowing three generations to a century). I believe, when the truth of heredity as respects man shall have become firmly established and clearly understood, that instead of a sluggish regard being shown towards a practical application of their knowledge, it is much more likely that a perfect enthusiasm for improving the race might develop itself among the educated classes.

<sup>2</sup> I take all the following facts from a very curious and interesting memoir by Mr. Sykes Gamble, Assistant Conservator of Forests in British India, published in the *Transactions of the Highland and Agricultural Society of Scotland*, 1872.

## FRASER'S MAGAZINE.

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### THE DOMINION OF CANADA.

NOT much more than a century ago the greatest and most promising colony ever planted and nurtured by France fell into the possession of Great Britain. Slightly behind us in the race of discovery, in that of acquisition she had surpassed us; and when that final appeal to arms occurred on the plains above Quebec, which history commemorates as a mortal duel between two great commanders, she claimed all the lands watered by the St. Lawrence and the Mississippi from their sources to the ocean, and whatever else might lie farther in the unknown west, even to the very shores of the Pacific.

On one hazard Montcalm staked an empire, the loss of which was acknowledged by France in 1763, and with it that supremacy in the New World for which the rival powers had so long struggled. The night of England now seemed almost superhuman. Peaceful and prosperous at home, free beyond other countries, honoured and feared by all, the limits of her future greatness depended alone upon her discretion.

In that moment of national exultation who would have believed that before twenty years were past a large section of the people who were then rejoicing with their king, would be converted into deadly enemies, dragging from his sway the territory they had often helped him to maintain, and that of all his Transatlantic subjects, those foreigners whom he had just acquired would alone remain faithful to him, and even be found a little later fighting side by side with his troops against the aggressions of the new democracy? Yet these events form a natural sequence.<sup>1</sup> Undisputed possession rendered us too confident of our treasures, and arrogant to the inevitable guardians of them. Temptation to stab his old foe, while they helped him to the momentary gratification of revenge, blinded Louis XVI. to the general danger of the principles he was promulgating. Whilst their consequences, his dethronement and murder, the ruin of the kingdom, and the annihilation of religion and order, so shocked the simple Normans of Canada as to make them

<sup>1</sup> Yet certain shrewd thinkers predicted nearly what happened. It is said that at the time of the cession the French Minister warned the British Envoy that it would lead to the loss of our colonies, and when the Treaty was fairly signed, Choiseul could not hold exclaiming with glee, 'At last we have got them!' M. de Verguènes, afterwards Minister for Foreign Affairs, then Ambassador at the Porte, also made use to an English traveller of these prophetic words: 'The consequences of the entire cession of Canada are obvious. I am persuaded England will ere long repent of having removed the only check that could keep her colonies in awe. They stand no longer in need of her protection. She will call upon them to contribute towards supporting the burdens they have helped to bring on her, and they will reply by striking off all dependence.'—CREASY, *The Constitution of the Britannic Empire*, 144.