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POVERTY AND SOME OF ITS EFFECTS UPON SCHOOL-

CHILDREN

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Degree of Master of Education by E.N. Nash,
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Feb. 1941.

FOREWORD.

I began to work for this thesis in September, 1939, and the facts in it are true for 1938. I took the year 1938 as the latest year for which government publications were then available, and it had also the advantage of being the last year during which the educational policy of the country was not disturbed by war or preparations for war.

The war has changed every aspect of the social life of the British Isles, and education has been particularly affected, so that some of my statements which were true for 1938 are probably true no longer. Certainly what I say about the extent of malnutrition is an understatement of the problem as it exists to-day. The cost of living has risen 22 per cent since the summer of 1939; the cost of food has not risen so much, for the price of some foods has been controlled, but this is counterbalanced by the fact that some foods which were cheap have become luxuries and others have vanished from the market. Nor have the rises in wages been enough to compensate for the rise in the cost of living. We learn from the Ministry of Labour Gazette that of the twelve and a half million workers eight million have obtained an increase of wages averaging 4 shillings and 4 pence a week, and one half million have suffered decreases averaging 2 shillings a week. Evidently the war has meant serious financial loss to wage-earners. And families above the financial class of the weekly wage-earner have suffered even more severely when the bread-winner has been conscripted to the army and his family has been forced to adjust

their standard of living to, ^{the} allowance given to a soldier's dependents. We can be sure that many more children suffer now than suffered eighteen months ago from the disadvantages of poverty. I f poverty nullifies the gifts and promise of the young, the wastage amongst the present generation of school-children will be greater than the wastage amongst the school-chıldren of the last twenty years. The war, I am sorry to say, has strengthened the argument of my thesis.

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P A R T I.

I N T R O D U C T I O N

The purpose of this thesis is to assess the wastage which society suffers from the frustration of potential ability through the drawbacks attendant upon poverty. The subject is difficult because it is impossible to obtain evidence in experimental conditions. We cannot take a slum population and educate it at Eton and Oxford. We can have no knowledge of the negatives involved; we are reduced to guesswork and imagination when we consider the loss which mankind has suffered in the past, and may still suffer in the present, of poets, scientists and statesmen who have been prevented by lack of early opportunity from discovering and developing their gifts. All we can do is to examine the social and intellectual influences of poverty and form an opinion as to how far they account for the difference in apparent ability and in achievement between the various economic classes.

The difference in achievement between the classes is enormous. Only a minute proportion of the "successful" have come from the labouring classes which comprise the vast majority of humanity. I use the word successful to describe those who have reached positions of wealth, honour or power, or who have created works of genius in the sphere of art or science. This disparity in itself suggests that innate ability is found most frequently amongst those whose ancestors have won their way to the

middle class. The superior achievement extends to physical development, for we find that the wealthier classes are taller than the poorer classes, and Dean Inge has remarked that he thought that he would have to go through life conscious that he was shorter than his contemporaries, until he left Eton and found that he no longer had to look up to meet people's eyes. If we can judge by the mortality tables the "Public" schoolman enjoys superiority in health as well as in height. I think we may go further and say that members of the middle and upper classes tend to exceed the rest of the population in some of the more subtle and less measurable qualities of character; they have more dignity and self-confidence, and a manner of authority without assertiveness; they show more concern for civilised values.

These manifestations of superiority may be due, not to inheritance of superior qualities, but to the inheritance of a superior environment; they may be social, not biological. Students of social and educational matters are aware of the problem, and admit that the superiority of the wealthier classes is in part due to their more fortunate nurture, but it is easy to be ensnared in the spell cast by appearances, and we find that the assumption that the wealthier classes have innate as well as developmental advantages is widely accepted. I think that it is necessary to discard preconceived ideas as to the relative ability of the economic classes and examine the subject afresh, and it may be easier to do this if we consider the historical and psychological factors which support the assumption.

Men have always been troubled by the failure of society to achieve justice for the individual. Aristotle recognised that slavery was necessary to Athenian culture,

and he was in any case unable to imagine a society based upon free labour, but he admitted with regret that men who were endowed with the moral and intellectual capacity for freedom were occasionally born into slavery. Since the time of Aristotle the sharp demarkation between the free and enslaved has worn away and the issue has become less clear cut, but the essential problem remains, and thinkers who have some of Aristotle's intellectual honesty are disturbed by the fact that society does not reward men according to their needs, nor use them according to their capacities. What the thoughtful admit is not admitted by the average of humanity. Most people prefer to forget the problem. Complacency and a preference for moral comfort interests them in defending the justice of the society with which they identify themselves. Many escape from the harsh implications of inequality by the superficial view that there is a rough justice which rewards virtue and industry with the most obvious and measurable form of success, with wealth and power. The poor boy of intelligence application and piety has held up before him the career of a Dick Whittington. Gray might point out that Miltons who never learned to read and Hampdens who had no property to defend lie buried in the obscure graves of country churchyards, but his opinion can be disregarded as the extravagance of a poet by those who are confident that they owe their professional status, or their wealth and prestige, to the vitality with which during their youth they worked at books, or applied themselves to shouldering out weaker competitors.

This is not a view which is any longer tenable, but it is one which contains enough truth and convenience to make it die hard, and it therefore deserves consideration. Its pertinacity can be explained partly on psychological

grounds; the vocal section of the population, the only section which in the past could read and write and which enjoyed any social mobility, and the section which to-day writes and speaks for the largest and most influential audience, is the economically successful section of the population. Few people have the disciplined intellectual honesty which would compel them to admit to themselves that they owe their good position to good luck when so many more attractive explanations lie ready to hand. There is the tendency for people of no unusual qualities to feel that they are in some elusive, indefinable way superior to others, and there is family loyalty and vanity which leads them to think that their immediate ancestors were superior to the general run of humanity. The situation is for the successful as satisfactory on psychological as it is on material grounds, and one does not have to attribute consciously vicious motives to those who hold power in order to explain their faith in the justice of the method by which they have been selected for prosperity, their unwillingness to question the order of the world which has favoured them, and their assumption that their fortunate lot is due, not to the inelasticity of society or the actions of chance, but to a decision of the laws of inheritance against which there is no appeal.

Nor is this opinion that a superior position implies the possession of superior gifts one which is unsupported by evidence. The able do often win economic success. We all know of families who are moving upwards in the social scale by virtue of their gifts, and, seeing those who succeed it is easy to forget that there may be many others, equally deserving, who fail, and that the upward movement may be counteracted by the retention in important positions of people who have won their place by social qualifications rather than mental and moral

qualities. If this happens, poor stock is maintained and given survival value in the protected circles of the financially secure.

These three factors, the first the superior achievements of the members of the wealthier classes, the second the natural tendency to defend the existing order, the third the rise of a certain number of the able to a class above the one into which they were born, create the common assumption that wealth is related to innate ability. For many people they give to a reasonable probability the unmerited authority of a fundamental premise.

I shall shortly give evidence of the high contribution which the wealthier classes have made to the cultural inheritance of western Europe. If there is no difference in ability between the different economic classes, or if the difference is only slight, and lack of opportunity accounts for the relative failure of the poor, the waste of genius and of the potentialities of human lives has been a tragedy that we can best understand if we imagine the world deprived of Shakespeare, Mozart and Leonardo da Vinci, for some of the thousands whose gifts were unrealised must have been men of equal stature with these. It is a tragedy which must be accepted without bitterness, because the limited means of production in the past made it inevitable that civilisation should be served by many and enjoyed by few. But it is not a tragedy which we can allow to persist in the present.

For one thing there is now no need to allow the destruction of human abilities, because we have the means, if we organised society efficiently, to give each child something approaching the environment it deserves. For another, we cannot afford the waste. We are competing industrially with nations who recognised earlier than ourselves that industrial and commercial competition

demand intelligent, trained workers and a high standard of living. Leybourne and White (b') point out that the Education Act of 1902, which provided grants for secondary schools accepting the necessary percentage of state scholars from the elementary schools, was a result of the demand for skilled clerical work, and that before the Act came into force large numbers of German clerks had been employed in England. In general we find that educational advances have followed the evolution of a complicated society which has needed increasing variety and skill in labour. We must give every opportunity to enterprise and intelligence so that many boys and girls can take a useful place in the production of material goods, and so that the few who possess ability of the kind usually described by the word "genius" may do the creative work by which mankind is permanently enriched. The wealthier classes are now ceasing to reproduce themselves; if members of the poorer classes are not enabled to take the lead in art, learning and discovery the quality of civilisation is likely to deteriorate.

There is another reason why we cannot afford to leave the principle of "equality of opportunity" in the realm of the ideal. In the past, as an unconscious recognition of necessity, people accepted the limitations which held them in the economic strata into which they had been born. They will no longer do so. There are signs that if they are denied hope and a share of the things which lie beyond a mere routine of existence they will break the present form of society rather than be broken by it. Unhealthy societies have in the past survived, and we know of aristocracies of birth and wealth which continued for generations to live at the expense of ignorant populations for which they performed no service. It is unlikely that in the present tormented and

revolutionary state of the world stagnant politics of this kind can survive. We must give children the prospect of a world in which they can fulfil legitimate ambitions, find work which is more than a means of subsistence, and leisure which is more than a recuperation for work.

I maintain that the proper object of civilisation is to enable human beings to realise their gifts and potentialities, and that the value of a civilisation can be estimated, and is estimated in the eyes of history, by the highest development possible to human beings within it, and by the proportion of its members whose lives reach beyond servitude to necessity. This implies that civilisation is attainable only by the protection of the weak, an idea which was in the past condemned as disgenic and degenerate, and which is still condemned as disgenic and degenerate by some, chiefly perhaps by those who are so uncertain of their own position that they cling to the artificial protection of their privileges. The meaning of the idea that civilisation is measured by the protection which it gives to the weak depends upon the definition of the word "weak" in this context. Let it be clearly understood that I do not advocate increasing the survival value of the mentally and physically inferior. On the contrary, I would gladly see the painless extermination of those who are subnormal mentally or physically if only a satisfactory means could be found, first of determining who could best serve the world by leaving it, secondly of carrying out such a revolutionary measure, and in view of the nature of the inheritance of recessive qualities it seems as if the first condition would be as hard to satisfy as the second. I attach great importance to what may be described as "general innate superiority." I have taught "A" forms in schools which were divided into four parallels, which means that I have taught children who were selected from

the intellectual upper eighth of the population, if we assume that the Special Place winners are drawn from the upper fifty per cent. of the population. These children are reasonable, critical, sensitive, vigorous and, in the best sense, serious. Some of them owed their superiority in part to good homes and good nourishment, but they could not be entirely explained on these grounds, and it was clear that they were well endowed by inheritance with the better characteristics of humanity. It seemed to me that if the least intelligent seven eighths of the world could be struck down like the Assyrians of the poem, leaving only the intelligent and their descendants to organise society, some of our most obvious and pressing problems would be settled within a generation. For we are suffering at the moment from a failure of human intelligence. Minds of first class ability may guide the destinies of nations from evil motives for evil ends, but their schemes succeed only because the stupidity of the vast majority of humanity provides them with easy dupes and accomplices.

When I say that civilisation must protect the weak I mean that it must protect those who are at a disadvantage in the ruthless struggle for economic survival, not because they are inferior in courage or ability, but because they have inferior weapons for this kind of warfare. It is perhaps impossible to arrive at absolute standards of virtue for all opinions on the subject are inevitably entangled with ideas of social usefulness; when courage serves no socially useful purpose we call it recklessness; a disregard for the interests of others is sometimes commended as business enterprise by those who benefit by it; the boundary between firmness and obstinacy is often a matter for fruitless dispute. But if we are not so strict in our definitions we can agree as to what are the finer human qualities, and in general terms we can describe them, provided we recognise

that the standards by which we judge are fallible and limited by circumstances. The weak whom civilisation should protect are those who have unusual powers of perception, sensibility and intellect, but who are crippled in the struggle for achievement by failing in the single-minded pursuit of self-interest which is usually necessary if worldly success is to be attained by those who start with the handicaps of poverty and obscurity. Lecky, the most circumspect of historians, remarks of the great Duke of Marlborough that he was indeed treacherous and avaricious beyond what was considered decent in a treacherous and avaricious age, but he adds that nothing else was to be expected of a man who had raised himself from the position of a page-boy to the peerage, to great wealth, and to high command in the army. The vulgar, snob prejudice against the self-made man is based in part upon the fact that men make themselves more easily by their vices than their virtues.

Can we say that what was true of the reign of Queen Anne is true no longer? Has the adoption of the principle of equality of opportunity as the basis of our education policy and the creation of the "educational ladder" by which in theory the child from the slum can reach the highest kinds of work and authority had the effect of breaking down the barriers of class and letting into the professions large numbers of men and women whose parents worked with their hands? If we find that this has not happened we must consider whether the continued inferiority of the poorer classes is due to their innate inferiority, or to the existence of obstacles in their path which the possession of high ability and the educational system do not enable them to overcome.

Let us consider first the extent to which the middle and upper classes have in the past monopolised success, so that we can compare the social and economic

incidence of success in the past with its incidence in the present age of universal elementary education. It appears from an examination of the lives of the famous that there is a very high ratio of ability in the middle and upper classes, and if there is the same ratio of ability in the poorer classes it is remarkable that creatures of human ingenuity should have tolerated its frustration. When we read the brilliant analysis of the origin of gifted men of the British Isles (36) which Francis Galton wrote we find that the circle of those who deserve most highly of society, or who, at any rate, are rewarded most generously by it in recognition and fame, is so narrow that it constitutes almost an oligarchy. He studied the family history of 977 eminent men, and found that 332 of them had eminent fathers, brothers, or sons, and that 203 of them had eminent grandsons, grandfathers, uncles or nephews. This makes a total of 535 eminent relatives, an imposing number when we place it beside the calculation that on an average for the whole population one would expect to find only four eminent relatives within these degrees of kinship for every 977 people. It would be superfluous to give much space to examining in detail Galton's deductions from this material, for much of Galton's work is superceded, and we smile now at his opinion, written in all seriousness before the days of free elementary education, that a gifted boy was reasonably certain to find recognition and the assistance which would lead him to success, no matter into what economic class he had been born. It is interesting that some of the material which he collected is evidence for the contrary opinion to that which he believed he was supporting. When he examined English judges who held their positions between the years 1660 and 1868 and found them to be so much inter-related that 109 of them are grouped within only 85 families, and that

families of Lord Chamberlains especially include many eminent lawyers, he has produced evidence of such an extreme degree of family monopoly of apparent ability that we are forced to look for a second explanation, and do not have to study the years in question very deeply to find the answer in jobbery and nepotism.

Galton is not, however, entirely wrong, and to accept jobbery and nepotism as a complete explanation would be as superficial and hasty as to accept hereditary genius alone as supplying the answer. When we study Galton's table of the Temple, Grenville, Pitt and Wyndham families we see an illustration both of how selective breeding maintains ability in a family and of the extent of the power conferred by a privileged social position in eighteenth century England. Neither explanation would by itself account for the brilliant history of this governmental oligarchy, but, if he had studied the family history of the Pelhams, he might have been forced to a different conclusion, for he would then have found that membership of a privileged family was occasionally enough to secure an eminent position in the eighteenth century without any other qualifications being demanded.

If Galton's opinions are most of them out of date, his facts are indisputable. Eminent men in England have almost all of them belonged to successful families, if we judge success from an economic standpoint, and most of them have been members of the highly successful economic classes. He would maintain that general ability accounts for both aspects of the family success, and that the gifts were established in the family by the tendency of clever men to marry clever women. This reason for the production of strains of high ability is supported by recent investigations. Carter in his studies on marital resemblance (16) says:- "The evidence points unmistakably

to the fact that like tends to mate with like where the traits under consideration are such as to be a factor in selection, and even in traits which are not directly considered, but which are related to those factors upon which selection depends." Havelock Ellis (30) has expressed the same opinion that intelligent men usually marry intelligent women. It is easy to find exceptions to this rule, especially amongst the timid and neurotic who need to have their self-confidence supported by the reassuring company of an inferior, but these men rarely reach the first rank of ability and are in any case insufficient in numbers to alter the general truth that able men are not influenced by the uneducated fear of a clever woman, and, further, find the prospect of the constant company of a stupid one intolerable. Most men prefer a certain amount of understanding from their mate. Even on the theory that human mating is a matter of random selection an able man is more ~~th-~~ likely than a nonentity to marry an able woman, or a woman who is a member of a gifted family and able to transmit good characteristics for he moves in circles of those who share his interests and abilities and is likely to meet and marry members of their families. Sympathy of tastes and chances of social and professional contacts probably combine to explain the persistence of musical genius in the famous musical families. So we find that once a man has taken the first steps to success and moves in a circle of people who share his ambitions, selective breeding comes into play and occasionally results in the establishment of highly gifted families. I will discuss later why selective breeding for high ability operates only amongst the upper and middle classes.

Havelock Ellis (30) made a detailed collection of data about eminent Englishmen and women who lived between the years 1500 and the middle of the nineteenth

century, and his results support Galton's in that they show that by far the largest proportion of them come from the wealthiest classes, or rather, the point which Galton would consider more important, the classes which have proved their ability. I give below Ellis's table showing the social origin of British men of genius.

Social Class of British Men of Genius

Judged by occupation or status of father.

	No.	%
Upper Class (or "good" family)	154	18.5
Yeomen and Farmers	50	6.0
Church	139	16.7
Law	59	7.1
Army	35	4.2
Navy (and sea generally)	16	1.9
Medicine	30	3.6
Miscellaneous Professions	65	7.8
Officials, clerks etc.	27	3.2
Commercial	156	18.8
Crafts	77	9.2
Artisans and unskilled	21	2.5

Beside this table it is instructive to consider the proportion of the population which occupies the different social classes, so that we can see what a small proportion of the poorest classes attain the highest degree of success.

Percentages of the Different Classes of the Population

Figures compiled by the Anthropological section of the British Association.

Professional Classes	4.46
Commercial Classes	10.36
Industrial Classes	10.39
Artisans	26.82
Labourers	47.46.

These figures minimise the comparative failure of the poorer classes, because the proportions in the occupational categories are taken for the end of the nineteenth century, and the statistics for the incidence of the gifted come from the last five centuries, some of them centuries during which a much smaller proportion lived in comfortable circumstances. During the past centuries not only were the unprivileged classes relatively more numerous, but their opportunities were more limited, for between the loss of the control of education by the Roman Catholic Church and the establishment of the free elementary schools there was not, except for the rudimentary education given by the Sunday schools, a way by which the untaught peasant or the debased drudge from the mills could struggle to the prosperous and professional ranks of society. Another reason why the two tables cannot be compared exactly is that their method of classification is dissimilar; in one classification artisans and unskilled labourers are bracketed, in the other they are separated. If we take the two assumptions which exaggerate the success of members of the poorest classes by assuming firstly that the distribution of wealth has remained constant through five hundred years, and secondly that the artisans and unskilled labourers of the first table comprise 47.6 per cent. of the population, we find that 59.8 per cent. of our men of genius come from

the 4.6 who form the professional classes and that only 2.5 come from the lowest socio-economic class. In other words a member of the upper or professional classes has had 250 more chances of achieving eminence than a member of the labouring classes. In this connection it is perhaps worth noting that Terman, (106) writing ^{of the present century and} of a country which is presumably more democratic than Great Britain, and of a very minor degree of supernormal ability, finds that the professional class contributes ^{proportionally} 1003 gifted children to the schools for every 35 contributed by the industrial class.

We are concerned not so much with the inevitable wastage of the past, as with the opportunities of a child living in England to-day, and it is therefore more instructive to study the social origins of successful men who are still living or who have lived during recent years.

A place in the Cabinet is the highest and most usual ambition for a man whose gifts are of a political or administrative kind, and since membership of the Cabinet is so much desired and the number who can realise their ambition is limited we may assume that the men who form the government have a very high average ability. Laski (57) analysed the social origin of men who held Cabinet office from 1801 to 1924, and we can see from his results that the eighteenth century governmental circles were not much widened during the period of his investigation:-

Origins of men holding Cabinet office 1801 - 1924

Sons of Nobility.....	182
Sons of other parents.....	124
Educated at Oxford.....	118
Educated at Cambridge.....	81
Educated at Eton.....	83
Educated at Harrow.....	36
Educated at other Public Schools....	53
Educated at other Universities.....	26

Lawyers.....	8
Soldiers and Sailors.....	23
Civil Servants.....	3
Men of Letters and Journalists.....	9
Trade Unionists.....	8

The number on the above table who had working class parents is less than 3 per cent; 54 per cent were the sons of noblemen; further, we find that 78 per cent were the sons of rentiers, men who had not earned, in the strict sense of the word, the income upon which they lived. We can safely say that in the past economic success and political power have gone hand in hand. When we examine the composition of the Cabinet between 1917 and 1924, a period which included the first labour government, we find that the proportion of members of humble origin is much increased, but it still falls far short of the numbers the poorer classes would attain if their representation in the government were in the ratio of their proportion of the population:-

1917 - 1924. Total number of ministers 52.

	Number.
Sons of Nobility.....	14
Sons of other parents.....	38
Educated at Oxford.....	18
Educated at Cambridge.....	9
Educated at other Universities.....	4
Educated at Eton.....	6
Educated at Harrow.....	8
Educated at other Public Schools.....	11
Lawyers.....	8
Soldiers and Sailors.....	1
Business Men.....	4
Civil Servants.....	1

Men of Letters and Journalists.....	3
Academic.....	0
Trade Unionists.....	8

The working class percentage has risen to 15 per cent, and political success seems to be receding from the nobility, since only 27 per cent. were the sons of noble men. Receding, but it has not yet deserted them, for we find from Haxey (44) that the old governmental families are still heavily represented by relatives and connections in both the government of 1931 and in the House of Commons of that year. No fewer than fifty three members of the House were closely connected with powerful and ancient families of the higher orders of nobility. As I am reviewing the situation in order to discover how the life of a child during his school days influences his after career, it is interesting to discover that Balfour, who was educated at Eton collected round him in 1902 colleagues, almost half of whom were Eton men, whereas Baldwin, a Harrovian, in 1924 gave office to six Harrovians. In the National Government Cabinet eleven out of twenty-one members were aristocrats by birth and it is clear that education at a great 'Public' school, or membership of the social classes who send their sons to those schools, increases enormously a boy's chance of attaining a seat in the Cabinet. Laski comments that if similar data were collected for the ministries of France or America during the same period we should find that the middle and professional classes were more highly represented than the rentier class which, together with the titled aristocracy, still governs England. If Laski is correct in this opinion it appears that ability may be more common amongst the economically successful, but that English society gives advantages to birth and wealth beyond those which can be justified by ability.

The Foreign Office and the Diplomatic Service is even more exclusive than the Cabinet; the exclusiveness of this branch of the civil service is the result not so much of forces operating to an end which may be accidental as of deliberate policy, and it shows less evidence of democratic alteration in recent years than the Cabinet. Until 1919 no candidate could sit for the examination of either the Diplomatic Service or the Foreign Office unless he was "known to the Secretary of State, or recommended to him by men of standing and position on whose judgement he could rely and who themselves knew the candidate personally." Until the same date candidates could not be recommended for these services unless they had a private income of at least £400 a year. (75) I give a table showing the school education of civil servants who entered the services between 1851 and 1929:-

	F.O.	D.S.	Total
Eton.....	17	67	85
Harrow.....	6	23	27
Leading Public Schools.....	6	36	38
Lesser Public Schools.....	4	22	26
Other Schools.....	-	9	9
Military and Naval Colleges.	-	5	5
Privately.....	1	18	18
Abroad.....	2	9	10
Unclassified.....	11	21	31
	<u>57</u>	<u>210</u>	<u>249</u>

We can see that there is no place here for the boy who has been a to a Public Elementary School. Sixty per cent went to the eleven most exclusive "Public" schools. Most of the rest were educated at the lesser "Public" schools, or were educated for the fighting services. When Nightingale examined the parentage of the same men he found that 53 per cent. came from aristocratic families

and most of the others from the more privileged professions. Even the business world, which represents the aristocracy of the future, lacked, presumably, the required prestige, for it was represented only to the extent of four per cent.

These facts distort the present situation a little, for during the period they cover there has been a decrease in the most aristocratic element and an increase in the business and professional elements. But the facts remain that no child of working class parentage has, as yet, won an entry to these services, and that the proportion who attended the eleven leading "Public" schools has actually increased during the last seventy years. This is partly because the Foreign Office and Diplomatic services, for reasons which it would probably be instructive to investigate, are largely recruited from Roman Catholic families, and the leading "Public" schools have only admitted Roman Catholics in recent years.

When we come to other spheres the aristocratic bias is less pronounced, perhaps partly because the aristocracy covet only political success, perhaps because the conditions of competition in other spheres does not give to birth any special advantages. Aristocrats are found amongst bishops, generals and judges, but on the whole the church, the army and the law are reserved for people who are slightly more humble in their origins, and when we consider those who achieve eminence in literature, art or music we find that noble birth confers no advantages in those professions. This does not mean that special advantages of birth are not needed for achieving eminence in art or the professions, but that the advantages needed are of a different kind. It is advisable to be born into a family which can afford to give its sons an expensive, or at any rate a prolonged education, and we find that men who succeed still come from the wealthiest ten per cent of the population. Genius may occasionally starve in a garret, but before undergoing

this romantic penury it has been created and fostered in homes in which books existed, and generally in homes where people had leisure to discuss ideas beyond the elementary economic necessities. I challenge anyone to get through the fingers of one hand in counting English generals, poets or judges who were born into the working class. Ginsberg (38) has demonstrated the social origins of lawyers by tabulating the professions of the fathers of the entrants to Lincolns Inn. He found that the vast majority, about 85 per cent, belonged to the professions or were "gentlemen". Recently there has been a slight but significant influx of men who were the sons of skilled labourers:-

Between 1904 and 1908	0.40 %	were	sons	of	skilled	labourers				
" 1908 "	1913	no	"	"	"	"	"	"	"	"
" 1919 "	1922	0.53 %	were	"	"	"	"	"	"	"
" 1923 "	1927	1.8 %	"	"	"	"	"	"	"	"

This provides a promising indication that the educational ladder does not always fail, although it also shows that, whether they have equality of opportunity or not, the working class is still very far from attaining equality of achievement.

It occurred to me that it might give a false impression of the opportunities open to men who have been educated at the expense of the state if one merely examined certain stereotyped careers such as law or politics; it seemed to me possible that even if these ways were usually open only to "Public" schoolmen there might be miscellaneous opportunities and varieties of achievement which are open to ability even if its owner does not have the magnificent start in life provided by an education at Eton or Harrow, or a parent successful enough to be able to place his son when he leaves school far along the way to success. I thought that if the ways to success and recognition were various I should

find the people who had travelled on them in the pages of Who's Who.

A place in Who's Who does not imply a high degree of success, for there are four thousand pages in the 1938 volume and there average ten names to each page. Not all the names belong to people who were educated in the British Isles; some belong to Americans or to foreigners of other nationalities who have published works in the English language, or whose lives have been closely connected with England; a fair number belong to colonials. But the majority are English, more than thirty thousand out of the total forty thousand names. This is a long step down from the degree of eminence demanded for inclusion in Ellis's list, a longer step than the mere disparity of numbers suggests, for Ellis's subjects were scattered over five centuries and the people in Who's Who are still living to-day. One would therefore expect to find a very much larger proportion of men of poor and humble origin in a sample from Who's Who, especially as the benefits of education and opportunity appear to have spread rapidly down to lower income groups during the nineteenth century. This is not so. 11.7 per cent. of Ellis's "British Men of Genius" come from the classes of craftsmen, artisans and unskilled labourers; 9.9 per cent. of my sample from Who's Who were of humble origin, in so far as I could judge from the rather scanty information which is given about them. This may be because the lower and easier ranks of success can be reached by means of the right social background and education, ordinary ability and steady character, but that the higher ranks of success demand gifts so rare that the rich and poor compete on more even terms for the highest places. Ability which will bring the son of a lieutenant to the rank of colonel and place him in Who's Who will leave the son of an unskilled labourer a foreman

in a factory. The order of ability which was possessed by Francis Place, or William Blake may bring both to fame.

My sample from Who's Who consisted of three hundred names which I chose by opening the book at random near the beginning and taking the name nearest the bottom right hand corner which had twelve lines given to it; I then turned over two or three pages and chose the next name in the same way. The condition that the name should have twelve lines given to it excluded very few, less than three per cent, and it prevented my having on my list people about whom I could collect no useful information. When I was forced to reject a name I took the first one immediately preceding it on the same page which fulfilled my conditions. I rejected all those who had been educated abroad, in the colonies or in Scotland or Ireland, for it was bad enough to have to tabulate the multiple educational system of England and Wales, without having to force the colonial, Scotch and Irish educational systems under the same headings. This exclusion lowered the number of medical men in my sample, for many of them are educated in Scotland. I did not exclude those who after having been at school in England or Wales went to a university elsewhere, since it is with school education that I am at present concerned. I also excluded those who so far as I could tell had no other qualification besides noble birth; this caused me some difficulty when it came to men in the army, for with many of them it was difficult to tell whether they were included on account of their parentage or their military careers; I studied the careers of the doubtful cases and accepted them for my list only if their army life amounted to more than a social decoration and extended further than having served from 1914 to 1918. Even with this discrimination against the army it will be seen from my table of results that the number of military names which

I collected is altogether disproportionate to the size and importance of the British army in 1938.

This leads me to one of the disadvantages of my sample. Who's Who is not consistent in the degree of success which it demands. It admits the army more easily than the navy. It includes the headmasters of the least notable of the "Public" schools, and omits the headmasters and headmistresses of the most important of the public secondary schools, although the heads of these schools are men and women whose careers have been equally successful. It admits the popular novelist more easily than the scholar whose work is less notorious but more important.

There is one other unsatisfactory characteristic of my sample, and this is that it does not reflect the changes which have taken place in education during the last forty years, because nearly all its subjects were educated in the nineteenth century. The educational ladder is younger than many people believe; the principle that every child should be taught was established in 1870, but it was impossible to enforce attendance until fees were abolished for the poor, and this was not done until 1891, so that we have not yet had two generations of universal elementary education. In the same way it is inaccurate to assume that secondary education for children from poor homes began in 1902; before 1902 there were some "Higher Grade" schools which taught older children for very small fees, and for many years after 1902 there were areas in which the provision for cheap secondary education was sketchy, or even non-existent. Few people enter the pages of Who's Who before they are fifty years old; once they are in they stay there until they die, so that they are a grey-headed company with an average age of nearer seventy than sixty. I had hoped to be able to show a difference in the social origins of the successful as a result of the 1902 Act and other democratic develop-

Table Showing the Education of Three Hundred Successful Men and Women, Chosen at Random from the Subjects of "Who's Who".

Profession of Occupation	Place of Education								
	Eton, Harrow or Winchester	Other "Public" Boarding Schools	Private Schools, or "Public" Day Schools	High Schools, Grammar Schs, not on "Public" School List.	Elementary Schools	Not Given or Not Classified		Oxford or Cambridge	Other Universities
Army	11	31	9	2	-	12	65	9	2
Navy	1	2	4	-	-	3	10	-	-
Medicine	1	6	9	2	-	2	20	10	7
Law	8	9	6	1	-	1	25	17	3
University Professors	2	1	4	3	-	7	17	10	4
Public Life	7	5	2	1	3	6	24	11	3
Civil Service	7	6	7	1	-	-	21	17	-
Business	1	-	7	4	-	5	17	2	3
Church	10	5	9	3	-	7	34	27	4
Letters	1	4	6	3	-	3	14	6	3
Artists and Musicians	-	5	4	4	-	1	14	3	-
Miscellaneous	1	7	14	5	1	11	39	13	7
Total	50	81	81	26	4	58	300	125	36
Per cent.	16.6	27.0	27.0	8.6	1.3	18.6	100	41.6	12.0

forty years ago, and although he is not unknown at them to-day he remains a very small fraction of the total entries, because one of the qualities demanded for the right of representation at the Headmasters' Conference is "independence" and "Public" schools are therefore precluded from accepting a large number of state scholars. We can safely say that, but for an insignificant number of exceptions, the 70.6 of my total who were educated at "Public" schools began their education at the expense of their parents and that the majority of the parents paid large sums of money for the schooling of their sons from the time they were eight or nine years old until they were at least eighteen, and, further, we can say that the 8.6 who went to secondary schools which are not represented at the Headmasters' Conference are unlikely any of them to have begun their education at an elementary school. The date of their birth makes it impossible for most of them to have done so, and many gave accounts of their parentage which indicated a prosperous or professional home. The boys whose formal education ended at their elementary school included two Labour M.P.s and a Trades Union official, and were therefore men whose careers were outside the traditional social world of the eminent and successful.

Of the ones who gave no entry for their education twenty-seven (46.7 per cent. of the 58) gave a parentage which was professional or prosperous. I assumed the parentage to be professional or prosperous if the father was a lawyer, a doctor, an officer in the fighting services, a J.P. or a clergyman; the last profession I included because although clergymen are often poor they are not poor in the sense in which a labourer is poor, and because there are so many endowments to help clergymen to educate their children that having a clergyman for a father does not debar a boy from a middle class education. J.P.s

now are sometimes men of the working class who have won the position through Labour Party politics, but the parents of men in my sample belonged to the last century when this was not so. It must not be assumed that failure of the parentage to indicate prosperity means that the parentage indicates poverty. An entry such as:- "Son of Mr. and Mrs. Smith, of Weston, Yorkshire." may mean that a man is the son of the local landowner or the son of the local postmaster, and the majority of the entries of which I could make nothing were of this kind.

I began with the idea that the less stereotyped professions might offer better opportunities to a boy who had the backing of an expensive education, and the results for the "business" and "miscellaneous groups" justify my anticipations to a certain extent. The business group shows that there is still sometimes scope for enterprise divorced from the initial holding of capital on the scale which involves the adoption of an aristocratic standard of living, and the miscellaneous group, which consisted of a B.B.C. news editor, a radiologist, a librarian, a mathematician, an inspector of schools, headmasters, engineers, and architects, showed a slightly lower proportion of luxurious educations than the other groups.

About women I say nothing; I included them in my sample, for the types of girls' schools run closely parallel to boys schools, but only four women came within my net, one a university professor, one an artist and two musicians.

The right kind of university education seems to be almost as necessary as the right kind of school to the future prospects of success, for if we exclude the figures for the fighting services, which we may justifiably do, since only two university of those in my list were assisted in their careers by their university course, one of these an army interpreter and the other an organiser of army

medical services, we find that 115 out of 225 (51 per cent.) had been to Oxford or Cambridge, and that 34 (15 per cent.) had been to other universities. These figures do not give a fair impression of the prestige and efficiency of the other universities and university colleges, since many of them were not founded at the time when the people on my list were educated, but it does show the advantage of having been to Oxford or Cambridge, the universities which despite numerous and generous scholarships are still too expensive for many students. The figures which I give for the universities are incomplete, and if all the facts were known the percentage who had attended them would be higher, for some of those who gave no account of their education must have been to one, professors for instance, and doctors of medicine. It appears that the snob value of having been to one of the older universities is greater in the law, the church, and the civil service than it is in some of the other professions. The higher academic standard of Oxford and Cambridge, and their more exacting entrance conditions weed out some of the weaker candidates and increase the ratio of their successful pupils, but it is unlikely that this superiority in the value of their degrees would influence very much the efficient ministry of religion or exposition of the law, and we must allow that social influences have in some cases been the decisive factor in deciding important appointments.

Laski, Nightingale and the records of Who's Who show a society almost as rigid to-day in its social stratification as it has been in past centuries. It seems as if the democratisation of education has not been able to raise an appreciable number of boys from poor homes to positions of affluence or power. Is this because of the inherited ability of the classes who send their children to the more expensive schools, or because of the superior training given by these schools, or because of the social influence of the parents and friends which by a subtle and extensive

system of "patronage" limits success to people of the same kind of background as that of men who already succeeded? I think that several factors combine to maintain the class divisions of society. We have ceased to believe that rigid class divisions are economic or desirable, and therefore we ignore the slowness with which they are crumbling, ignore the fact of inequality and stress the theory of equality.

But we know that many children from elementary schools proceed to secondary schools. And the fact that we have universal elementary education means that every child has put into its hands the most essential tool for further development and advancement, the power to read. Have these advantages created no mobility between the classes? Are children still held to the status of their parents unless they are given rare good fortune as well as rare ability? When we examine the social mobility tables of Jones and Carr-Saunders, (53) made from a sample of the population of Merseyside, we can see that society is often more yielding and sympathetic to the individual needs of the humble than a study of the social origins of the great and famous might lead one to suppose.

Occupational Grades of Parents and Children

(Parents selected at random.)

Grade of Parent	Grade of Child			Total
	A	B	C	
A	42	42	16	100
B	25	61	14	100
C	23	20	57	100
All	32	17	17	100

Occupational Grades of Parents and Children

(Children selected at random.)

Grade of Parent	Grade of Child			Total
	A	B	C	
A	58	37	42	45
B	18	26	18	22
C	24	37	40	33
	100	100	100	100

This shows that within humble and narrow limits movement upwards is possible and even common; one quarter of the members of grade A occupations come from working-class homes and nearly one third of the children of labourers do white collar work and so escape from the limitations of manual labour. Jones and Carr-Saunders say that "the general conclusion is that the class (or occupational grade of the parent) largely determines the occupational grade which the child enters, and the differentiation between one class and another begins before the secondary school is reached, through the class of primary school attended." This is self-evident; what is remarkable is that whilst the higher ranks of success seem to be the preserve of those who are born with great advantages, the lower ranks of success are reached by many who have no initial advantages in wealth or prestige. Movement upwards for a little way is apparently not difficult but movement upwards beyond the point marked merely by middle class standards of life seems to be so difficult that either ability of the degree usually described as genius is almost unknown amongst the children of the poor, or the obstacles in the way of its

full development are insuperable. Ginsberg (38) shows this. He found that movement from the ranks of the skilled labourer to the lower ranks of the salaried workers is common, but that larger movements from, for instance, the wage earner to the professional class, are rare. I reproduce the tables in which he gives his results:-

Comparison of Occupation of Present Generation and Paternal Grandparents

Paternal Grandparents	Children								Total
	Professionals	Students	Employers and Own Acc. 1	Employers 2.	Own Account 2.	Salaried (Miscellaneous)	Salaried (Teachers)	Wage-earners	
Professionals	30	100	2	1	2	32	39	3	209
Employers and Own Account 1	9	14	-	1	-	4	9	1	38
Independents	2	9	-	-	1	3	10	2	27
Employers 2.	31	157	-	8	3	157	209	33	598
Own Account 2.	12	90	-	8	13	142	119	87	471
Salaried	11	81	-	3	-	74	100	16	285
Skilled Lab.	7	87	-	2	9	162	187	126	580
Semi-skilled	3	13	-	2	1	88	45	102	254
Unskilled	1	3	-	-	-	10	4	13	31
Totals	106	554	2	25	29	672	722	383	2,493

Comparison between Father's Occupation and Occupation of
Present Generation

Fathers	Children Professional	Students	Employers 1.	Independents	Employers 2	Own Account 2	Salaried (Miscellaneous)	Salaried (Teachers)	Wage Earners	
Professionals	35	164	1	-	-	1	38	62	3	304
Employers & Own Account 1	9	16	1	-	-	-	6	8	-	41
Independents	2	2	-	-	-	-	1	-	-	5
Employers 2	20	109	-	-	15	5	91	170	20	430
Own Account 2	8	43	-	-	2	10	77	73	61	274
Salaried	28	171	-	-	3	-	182	249	37	670
Skilled Lab.	7	69	-	-	6	12	276	246	180	796
Semi-skilled	3	3	-	-	1	3	58	46	115	229
Unskilled	-	-	-	-	-	-	17	4	20	41
Totals	112	577	2	-	28	31	746	858	436	2,790

Mobility of Occupation TablesPresent Generation and Fathers

	Class 1	Class 2	Class 3
Class 1	33.3	7.0	0.69
Class 2	54.9	52.7	27.1
Class 3	11.9	40.2	72.3

Present Generation and Grandparents

	Class 1	Class 2	Class 3
Class 1	25.1	7.0	1.6
Class 2	57.7	57.7	35.5
Class 3	17.2	35.2	62.9

We can see from these tables of Ginsberg's that the the lowest economic classes are more fixed in their status than the higher ones, since 72 per cent. of the labourers had parents who were labourers, and approximately 63 per cent had grandfathers who were labourers, whereas only 33 per cent. of the men who followed Grade A occupations had fathers who were equally fortunate. We find also that there is a large scale upward movement from grade 2 to grade 1, and that an important proportion, approximately 12 per cent. of the men in grade 1 had parents of the labouring classes. It is still more significant that when we compare the tables showing the upward movement of the sons with the upward movement of the grandsons we find that nearly half as many again of these in grade 1 had grand-parents who were labourers as had parents who were labourers. This points to the steady rise of able families during two generations, and suggests the hopeful conclusion that mobility is increasing as compared with the past generation.

Is it possible to reconcile the apparent mobility of society as shown by Jones and Carr-Saunders, and, more explicitly, by Ginsberg, with the rigidity of society which is revealed by Who's Who and by the analysis of the social origins of the powerful given by Laski and Nightingale? I think that it is. I think that the answer is that society needs a number of men able to do skilled commercial work and humble professional work such as dispensing and teaching in the elementary schools. The educational ladder allows the luckiest of clever children from poor homes to reach the status conferred by work of this kind (it is instructive to observe the numbers of students and teachers in Ginsberg's tables), but beyond the humblest of the professions the competition is too keen, and the boy who is hampered by obscure parents, the wrong accent, and indifferent physical

development finds that he can go no further. If he mates wisely or fortunately and transmits his ability, his son may hope for a richer prize.

This answer is contrary to what one would expect to find on a superficial examination of the probabilities, and contrary to what I expected to find when I began this work. I expected to find that the first obstacles were the most insuperable, and that whilst there was no hope for the Milton who never learned to read, once a boy could read he might, if his mind were powerful enough, find his way over the later obstacles in his path. Seventy years of elementary education have disproved this, and shown, either that the millions of the working classes cannot produce even a few children of the calibre of genius, or that the conditions for the development and fulfilment of genius are too exacting and complicated for our educational and social system to create them for the poor.

The argument that the highest genius will break down the barriers of circumstance will not bear examination, and the number of eminent men of humble origin, even if we look for them through all the years of written history, is so few that we can hardly base a theory upon what we know of their lives. Burt, (13) to show that ability may surmount the handicaps of poverty and obscurity writes that:- "to conclude off-hand that in each individual case poverty is the main cause of dullness or incompetence would be neither logical nor just. A bare smattering of biography is sufficient to refute that simple induction. Bunyan, the tinker, Faraday, the blacksmith's son, Sextus the fifth, the child of a shepherd, Adrian the Sixth, the son of a bargee, Burns, Cook, Giotto, all sons of peasants, D'Alembert, the foundling picked up one Christmas night on the snowy steps of a Parisian church, Opie, Inigo Jones and Abraham Lincoln, each the son of a carpenter — these and

many like them have risen to the loftiest intellectual eminence from the lowliest social spheres. The poorest tenements in London contain many youthful geniuses, some of whom win, more of whom merit but fail to win, a free place or scholarship at a secondary school or college." Burt himself would be the first to admit that this quotation proves the opposite of its face meaning. He would have hesitated to list as examples in a paragraph the eminent who have come from the wealthier classes, yet, without overweighting his page, he can cite a large proportion of the great men who had their origins in the ninety five per cent of humanity who worked from childhood in the fields, workshops or factories, and if we examined closely the lives of some of these men we should find that, besides their extraordinary inherited gifts of mind and character, they were in some special way fortunate in their environment. Parents whose devotion and intelligence gave them opportunities beyond those usually possessed by their class, the guardianship of the Roman Catholic church, early contact with a stimulating mind or with someone capable of recognising and assisting rare gifts, factors such as these account for the success of some of them, and the absence of such factors accounts for the failure of many more.

History finds it something of a miracle when the great come from poor homes, and, like all those who deal in miracles, it loses sense of responsibility for truth, and exaggerates the marvellous. This may account for the die-hard mis-statement of the old-fashioned text books to the effect that Cardinal Wolsey was the son of a butcher, ~~misapprehension that Napoleon Buonaparte had parents who were and the common/peasants.~~ Every one knows that Keats was an apothecary; comparatively few realise that the word "apothecary" gives a false impression of his class and background; he received a middle class education and only became an apothecary when he lost his private means.

Alexander Pope is reputed to be of humble origin because his father was a linen-draper; people forget that his father was a wholesale linen-draper, and a man of substance. Burns received a good education, and as for Bunyan, he was no common tinker, a wandering mender of pots and pans; he carried on his father's trade as a maker of pots and kettles, and owned a forge and a workshop. Shakespeare's parents were not wealthy, but they sent their son to school, a privilege which was granted to few boys in the time of Queen Elizabeth.

It is not until we come to the Industrial Revolution, when there was a demand for mechanical improvements, and when machinery was still simple enough for the intelligent workmen of the factory to understand it, that we find a number of mechanical geniuses such as Stephenson and Kay who learnt about machines through tending them and who made for themselves great names, and even, in a few cases, fortunes. This impulse has now died, because the power of production has outrun the power to create markets so that inventions no longer pay a heavy dividend, and because machinery has now become so complicated that a formal training is necessary for a full understanding of it. The contrast between the frequent incidence of mechanical genius amongst the poor from the middle of the eighteenth century to the latter part of the nineteenth century with the absence of the poor from other spheres of success suggests that ability exists amongst the poorer classes, but that the historical conditions for its development and fruition are rare.

Despite the rapid development of a national educational system the proportion of the eminent who come from slum streets or farm labourers' cottages remains negligible. The scientific developments of the last two hundred years has opened new roads to success which demand different attributes of mind, but this has not, any more than the

downward extension of education, altered appreciably the social background of those who are given a place in the Dictionary of National Biography. In the next chapters I hope to show some of the reasons why the poorer classes fail to take advantage of the opportunities which the educational system appears to offer them, and fail to achieve the more conspicuous kinds of success.

THE RELATIONSHIP BETWEEN ECONOMIC STATUS
AND ABILITY

We have seen that in the British Isles, both at the present day and over a period of five centuries, the eminent and successful in art, politics, science and the professions have had a common factor in their history; their immediate ancestors, whatever their other variations and idiosyncracies, have been economically successful. Is this a law of universal application, or a condition which is intensified by the character of the social structure of Great Britain? English society is rigid in its social stratification compared with some modern societies, and ~~to have~~ ^{has} retained prejudices in favour of birth and privilege in social spheres which it has to a certain extent discarded in the formalities ^{of politics}. It is therefore profitable before we discuss the relationship between ability and prosperity in children to compare the incidence of genius in England with the incidence of genius in European civilisation in general, and in the United States of America; the comparison with America is particularly important because American society has still the fluidity caused by rapid industrial development, immigration, a comparatively democratic system of education, and the absence of a caste with feudal traditions to impose a complicated theory of birth superiority over the simpler one of wealth superiority.

If we examine the tables given by Cox (106) we find that the most eminent men of modern world history show a higher average social rank than the men on Ellis's list. 59.8 per cent. of British men of genius come from the aristocratic or professional classes. 81.2 per cent. of the famous men of modern European history come from these classes according to the material shown in the following table:-

Taussig Rating & Classification	Fathers		Maternal	Grandfathers
	Frequency	%	Frequency	% of 184 Reported
1 Professional & Nobility	148	52.5	77	41.8
2 Semi-Profess. Higher Business & Gentry.	81	28.7	65	35.3
3 Skilled Lab. Lower Business	37	13.1	35	19.1
4. Semi-skilled Labour	11	3.9	3	1.6
5 Unskilled Lab.	3	1.1	4	2.2
No Record	2	0.7	98	-
Total	282	100.0	282	100.0

This shows that a more exacting degree of eminence results in a more aristocratic origin, for the subjects of the table are the "Group A" of Cattell's list of 1,000 of the most eminent men of European history. Men who were eminent on account of their birth, such as kings and ruling dukes were of course omitted, as to have included them would have reduced the argument to a tautology. The proportion who came from the higher social classes would have been higher if they had been classified on Ellis's method, for Taussig's rating is democratic; it makes no distinction between the nobility and the professional classes so that we cannot distinguish on the table between those of noble origin whose social status is decided by birth, and the professional classes whose status is decided by the intelligence of the parents; also Taussig's second group would include almost anyone who owned land, and would include a certain number of the sons of yeomen farmers whom I have not included in adding classes which comprise

the 59.8 per cent. upper and middle class groups of Ellis's table. So we find that Cox not merely confirms, but carries further, the conclusion of Ellis that men of genius come almost always from the well-to-do classes, and suggests that the more exacting our definition of genius the higher will be the social class from which men of genius are derived.

These lists deal with a rare degree of ability, with "genius" as the word is commonly understood, and their laws may seem remote from these which govern the life of the ordinary school child, but Terman's study of gifted children in the state of California () shows that even for a degree of ability which is far from dazzling and which implies merely an intelligence which is definitely above normal the same rules hold good. Terman's subjects were 1,444 children from schools in the larger cities of California who, judged by intelligence tests and teachers' reports, were considered to be mentally supernormal, and of these children 643 were chosen to be the main experimental group. The social origin of the children proved to be much the same as that of their more illustrious compeers in superiority who are on Ellis's and Cattell's lists.

Terman recorded the occupations of their fathers and found that they belonged in the following proportions to Taussig's social categories:-

- | | |
|--------------------------------------|-------|
| 1. Professional..... | 31.4% |
| 2. Semi-professional & Business..... | 50.0% |
| a) Higher Group | 31.2% |
| b) Lower Group | 18.8% |
| 3. Skilled Labour | 11.8% |
| 4. Semi-skilled Labour..... | 6.6% |
| 5. Common Labour | 0.13% |

There is a similarity between these proportions and Ellis's which is unlikely to be accidental. Group 1, and the higher section of Group 2. amount to over 60

per cent. They appear to include the same classes as those of Ellis's which I counted as being middle and upper class, and to which 59.8 of his men of genius belonged.

When the children were classified according to the the incomes of their fathers it was found, from the figures supplied by the 170 fathers who were prepared to give detailed information, that the average incomes of the homes of the gifted children was 4,705 dollars, and that the median income of their homes was 3,333 dollars. These are sums considerably higher than the earnings of a labourer. At the time of the investigation the average earning of a skilled labourer in the United States was 2,500 dollars, and an unskilled labourer earned much less than this. It is clear, therefore, that most of the children came from homes far above the economic level of the manual worker. Only 35.3 of the children reported an income of less than 2,500 dollars. It is possible that the poorer fathers may have been less willing to reveal their incomes, and that the average income is greater on the figures given by the 170 who answered than it would have been on data supplied by the whole 643. But I doubt whether this is so. The modern necessity of filling up income returns on many occasions has broken down the Victorian reticence on the subject of earnings, and the man with a large and complicated income is often more impatient of the task and more secretive than the weekly wage earner.

The exponents of heredity as being a more powerful agent than nurture in the framing of human destiny will be glad to know that the gifted children sprang many of them from gifted families. There are sixty-two members of the American "Hall of Fame", and fourteen of them, or 22.58 per cent. were known to be related to one or more of the children in the main experimental group, many of them in the direct line. This is a remarkable fact, even if it is less remarkable than it appears at first thought, for the

geometric progression of the backward spread of ascendants means that most English speaking people are cousins if we count back for eight or nine generations; it was, we heard, possible to trace a blood relationship between King George the Sixth and President Roosevelt when international courtesy made it expedient to do so. Nevertheless, a much higher proportion of Terman's gifted children than of the average population had relatives who were famous or who had held positions of trust and honour.

When we step further down the intellectual scale and consider children who are mentally subnormal we find the same law in operation. Poverty and low mental powers are found together. Woods and Islerlis⁽¹¹⁴⁾ examined the pupils of several council schools. They used the marks won by the children in intelligence tests, took into consideration the teachers' estimate of intelligence, and gauged the economic well-being of the home by the teachers' accounts of the parents social position and the children's clothing, and by the reports of Care Committees on home organisation, possessions, and parental supervision. The correlations which they found between the intelligence of the children and the economic status of their homes ranged for different groups of children from .26 to .38, positive results, which have added weight because the standard deviations were very small.

These results are supported by many opinions and statistics which enable us to compare the success of the child in school with its economic background. I was first interested in the subject of this work by the casual remark of a teacher from an elementary school in a poor area, who, when she was asked to which secondary schools her pupils went when they won Special Places, answered "Oh, we don't win Special Places. We are a very poor school." She afterwards explained that she was not damning the incompetence of her colleagues or

herself, and revealed that she had made a factual and uncritical comment upon the concomitants of poverty as she found them. A little reading convinced me that her comment was true for nearly all elementary schools. This does not, of course, mean that no child from a poor home, or attending a school in a poor district ever wins a Special Place; it does mean that the number of Special Places won by the children of a district and the poverty of its inhabitants are closely related. It also means that the standard needed for winning Special Places and the standard of work done in the secondary schools varies with the wealth of the area in which the school is situated and from which it draws its pupils. Burt (13) says:- "I recollect among my London cases one boy who was regarded by his master as a sharp and promising lad for a denizen of a Paddington slum, as in truth he was; but no sooner had his family migrated to the superior borough of Kensington than he was sent forward from his new school, where all the youngsters were exceptionally clever, to be examined as a possible defective. The dullards of Stoke Newington seem smart scholars in Bethnal Green, and the star pupils of Southwark and Bermondsey ignorant and illiterate in the better schools of Lewisham and Hampstead."

Burt also gives an illuminating map of London showing the proportion of backward children in each area. The shadings on this map for increasing numbers of backward children follow with exactitude the shadings for increasing poverty, and, as the 'continuous' character of intellectual ability makes inevitable, the proportion of scholarship winners increases with the wealth of the area in which they live. The figures on the next page show how closely the intelligence of the child, judged by his success or failure in school, is related to the affluence or poverty of his family. Poor Relief, overcrowding, unemployment, and the

Relationship Between Poverty and Scholarship Entrance Success in
the L.C.C.

	Jun. County Schols. gained per 1,000 Elem. Sch. children	Percentage of Population below Poverty Line	Percentage on Poor Relief	Percentage Unemployed	Percentage of population Overcrowded	Death Rate (Per 1,000 Population)	Backward children (percentage of Elem. School Children.
Shoreditch	0.83	18.0	51.2	7.4	32.0	14.7	19.6
Bethnal Green	1.13	17.8	24.8	6.2	27.8	13.3	18.4
Southwark	1.15	13.5	32.2	6.2	23.5	14.3	17.3
Finsbury	0.74	13.2	21.5	5.2	34.0	14.8	16.7
Bermondsey	1.17	17.5	46.1	9.3	23.2	14.6	14.8
Stepney	1.81	15.5	19.5	8.0	29.0	12.9	14.2
Poplar	1.78	24.1	82.6	8.7	21.2	12.8	13.8
Kensington	1.32	7.9	9.5	3.2	16.7	13.0	13.6
Paddington	1.71	6.2	14.8	3.1	15.4	12.4	12.2
Holborn	1.10	4.6	16.3	5.3	19.8	12.7	11.8
St. Pancras	2.78	11.8	20.4	3.4	22.4	13.4	11.5
Islington	2.12	9.6	25.6	4.3	19.4	12.8	11.3
Battersea	2.44	8.1	43.0	3.5	12.4	12.0	11.1
Deptford	2.71	14.6	39.4	6.6	12.8	12.5	10.9
Lambeth	2.52	8.5	20.6	3.7	12.7	12.7	10.7
Marylebone	1.27	4.6	7.8	3.0	17.9	12.9	10.4
Westminster	1.82	4.2	5.3	2.5	10.1	11.8	10.2
Greenwich	1.92	11.8	16.3	4.0	13.8	12.0	10.1
Camberwell	2.68	8.2	33.8	3.7	12.8	12.3	9.2
City	2.00	8.9	3.5	4.2	6.6	12.8	9.0
Fulham	3.38	7.2	13.8	3.1	13.1	11.4	8.8
Hammersmith	2.97	7.2	17.1	2.7	13.8	12.0	8.7
Chelsea	3.61	4.5	12.5	3.0	13.7	13.0	7.6
Woolwich	3.81	8.8	27.2	4.3	7.8	10.8	6.9
Hackney	4.25	7.4	18.3	4.2	11.5	11.7	6.7
Stoke Newington	4.14	5.2	7.6	4.0	8.1	12.2	4.3
Hampstead	4.04	1.4	2.5	1.6	6.5	11.0	3.9
Wandsworth	4.89	4.4	8.2	2.0	6.8	10.8	3.6
Lewisham	7.81	4.8	27.7	2.5	4.7	10.7	1.2
Correlations with Backwardness	0.875	0.727	0.568	0.676	0.890	0.873	

mortality rates all agree in showing that low mental capacity is included amongst the many disadvantages of poverty.

Twenty per cent, Burt says, of backward children fall below the poverty line, for they are in the A or B categories of Booth's classifications of poverty; only fifteen per cent of the control children in similar schools (schools in poor areas, since 15 per cent. is above the average number to be in Booth's A and B categories) fall below it.

The Merseyside Survey of Jones and Carr-Saunders gives evidence of the same correlation. The figures for scholarship winners to the secondary schools go up as the figures for overcrowding go down, and we could judge equally well from either of the columns of figures which I give below the average economic status of the inhabitants of the area to which they refer.

Liverpool Wards arranged in Groups of Five in Order of Success in Gaining Scholarships	Mean No. of Scholarships gained per 1,000 Elem. Pupils	Percentage Overcrowded Families.
1.	11.3	4.5
2.	6.2	6.4
3.	4.3	7.5
4.	3.2	9.9
5.	2.2	11.2
6.	1.1	13.2
7.	0.6	19.6
8.	0.0	27.8
All Liverpool	3.4	11.3

We may assume that what is true for London and Merseyside is true throughout the British Isles, and in fact social surveys of other areas have similar results.

It would be monotonous and redundant to quote details beyond those I have already given.

The evidence of the origin of the eminent, of the able, and of the subnormal in ability and achievement shows the unwavering operation of a law by which success is limited to those who are fortunate in their birth and who belong to families which can give their children the advantages of comfort and civilisation. The higher kinds of success are almost closed to those who are not born into the aristocratic and professional classes which comprise the upper five per cent. of the population. The son of the weekly wage-earner, if his father earns a good wage, may be successful at the lower level which counts entrance to a secondary school as success; the child whose father can command only the wages of the unskilled labourer will be lucky if he gets as far as this. As for the child who is born into the lowest strata of the population, and whose father not only works for a weekly wage, but is uncertain even of qualifying for that small reward, the son of the casual labourer, or of the chronic unemployed, he will very like count as dull amongst the pupils of an average elementary school, and, further, he faces a grave probability that he will be classed as unfit for a normal education; it is from the ranks of children of similar parentage to his own that the wretched creatures who enter the special schools for the defective, the imbecile, and the idiot are chiefly recruited. What are the reasons for this harsh law by which everything is given to those who are already richly endowed?

THE INHERITED SUPERIORITY OF THE WEALTHIER CLASSES. I

The Inherited Superiority of the Wealthier Classes

Seventy years ago "inherited superiority" would have been given unhesitatingly as the answer to the question at the end of the last chapter, and although the same answer would not be given unhesitatingly to-day the problem of the relative importance of nature and nurture remains vexed and unsettled, and many reasonable people would still maintain that in general the poor are poor, not because their parents give them inferior opportunities, but because they give them inferior abilities. We realise better now the complicated factors which intervene to confuse the issues than the downright gentleman of the end of the nineteenth century who wrote without apparent mental discomfort:- "The London County Council sets up educational ladders in all parts of the Metropolis, but finds it difficult to get boys to go up them. The number of children in the schools maintained by the rates who are bright enough to make it worth while to give them the scholarships provided by the London rate-payer is hardly enough to fill them. No difficulty is experienced in filling those at the Public Schools or the Universities with boys of a very respectable level of intelligence, whose fathers belong mostly to the professional classes." (96) It would be stupid to give an answer in favour of environment as categorical as that given in the past in favour of heredity, for it would be a curious thing if there were not a seeping upwards of able stocks from the lower to the middle classes; entrance to the middle class, with its enormously higher standard of living and comparative immunity from the danger of destitution is a universally coveted reward for success. We have seen from the evidence of Ginsberg and Carr-Saunders

that there is movement upwards from one class to another, and we all of us know from personal experience of families who have fought their way up from the ranks of the weekly wage earners to the salariat; we most of us also know of families who, through misfortune or incompetence, are unable to maintain their position in the middle class, and who end by accepting a weekly wage or charity and sending their children to an elementary school. There is movement upwards and downwards by which the able tend to take their place amongst the economically successful, and the incompetent, as their professional earnings, or interest on investments decline, tend to sink to the levels at which simpler work is performed and the monetary reward is proportionately low.

But I should argue that the process is liable to too many accidents, that it is impeded by too many contrary forces, and that it is attacked by too many venal interests to give even approximately just results, and that it involves a wastage of frustrated ability which society cannot afford to condone and which it is inhumane to tolerate.

At present the inherent advantages of the middle class are exaggerated by the special opportunities given to its members which not only enable the brilliant amongst them to develop their gifts, but also maintain the mediocre amongst them in positions of artificial superiority. Before we can estimate the extent of their inherent superiority we must examine the forces in society which enable those who are born to wealth and comfort to reach distinction more easily than those who are born without such crude initial advantages.

I have referred to families such as the Darwins, the Huxleys, the Bachs and the Schuberts in which the breeding of people of similar gifts and tastes has resulted in strains selected eugenically. Such natural selection resulting in individuals of genius is of great value to

society, for men of genius provide a lead which thousands with humbler gifts but with understanding and discrimination are able to follow; they decide the ideas which shall be accepted by the generation which comes after them; they play a disproportionately large part in determining the quality of civilisation. Individuals of genius have very occasionally come from the poorer classes, but it is improbable that a strain of rare ability could establish itself within the working class, because the rarer and higher kinds of gifts are only revealed by the developing process of education and environment. Shakespeare and Einstein might have appeared entirely undistinguished in a paleolithic village, Michael Angelo might have been noted only for the vigour of his drawings of buffaloes, and Edison for a tendency to experiment with new ways of chipping flints. The gifts of the poor are often obscured in the same way, and remain dormant and unrecognised both by their owners and by society. The tendency for like to mate with like fails to operate in their case because like fails to recognise like or to meet like except by an extraordinary operation of chance. The garage hand of rare intellectual or artistic gifts, who for some reason failed at the age of eleven to win a place in a secondary school and has served petrol since he was fourteen, may marry the first girl living down his street who happens to appeal to his imagination or his sensuality. If he had gone to a university he would have been likely to marry a fellow student, a woman selected for some degree of intelligence, or to marry the sister of a friend who shared his specialised interests. Then his gifts might have been intensified in his descendants instead of being lost in the general stream of humanity. When we remember how frequently the able are related to one another, and how certain circles of the upper and middle classes appear to have almost a monopoly of the highest order of ability we see that the tendency for those who are both

highly gifted and highly developed to mate with families which share their advantages is eugenically important and constitutes one of the forces which drive mankind forward.

If skull measurements are any indication of intelligence some of the races of primitive man were as intelligent as the modern European, yet so far as we can tell the only exercise which primitive man could find for his talents, beyond manual dexterity and skill in hunting, was to draw figures and animals on the walls of his cave. This was because the more subtle gifts can only be expressed and developed in a complicated society which has a variety of needs and which bequeaths to its members a rich inheritance of intellectual and artistic traditions. A simple society tends to keep its members at a common level and differentiates between them chiefly by their physical characteristics. The child who leaves school at fourteen is denied access to the precarious accumulation of ideas upon which western civilisation is founded and must be content with the virtues and limitations of a savage; in a world in which everyone works with his hands for long hours and goes home with little energy left for other occupations, the genius and the dullard appear much alike. Education strings out the field, increasing enormously the distance between the foremost and the hindmost, making it clear that they are beings of an entirely different order of sensitiveness and ability. Thorndike has shown that bright children respond to stimulus and advance most rapidly when they are moved from a poor to a good environment, and, conversely, they are the ones who suffer the greatest deprivation if they are left amongst the restrictions of poverty. A vague and useless discontent, a sense that life is unjust and that they have been wronged is often all that distinguishes them from men who find their proper vocation in the work of a navy.

Another obstacle in the way of the breeding of strains of high ability amongst the working class is that the rise to the middle class is usually uphill fight which

lasts over two generations. This, perhaps, is one of the reasons why Ellis, writing in 1904, found that after thirty years of elementary education the children of the poorest classes were still missing from the ranks of the eminent, and why, after seventy years of elementary education they are still missing from the pages of Who's Who. We shall see later the precise nature and extent of the obstacles which the child from a poor home must overcome if he is to attain even a modest degree of success. Often what appears to be a modest degree of success represents for the child of the agricultural labourer or of the navy a superlative degree of intelligence and endurance. I believe that the frequency with which school-masters are found amongst ~~the~~ ^{rising families} ~~fathers of clever children~~ (pages 31, 32) is a result of this slow upward struggle, for the ladder provided by the state and charitable scholarships is an academic ladder, and the child from a poor home who has an aptitude for passing examinations may force his way back to the kind of school in which he began his academic career. Ginsberg has shown how high a proportion of the economically successful had humble grand-parents compared with the number who had humble parents, and I believe that if we examined the remoter ancestors of the eminent we might find a much larger number of them than of their fathers to be of humble origin. We commonly inquire about the fathers of great men, but are rarely inquisitive about their grandparents.

If it takes two generations to attain eminence, the chance that a brilliant boy will be born into the classes which can give him opportunities commensurate with his gifts, is enormously decreased. It is true that there is, according to Wingfield, (112) a correlation of .31 between the abilities of parents and children; but so far as I know there are no statistics giving the numbers of proportions of supremely able men who have had supremely

able sons. We may assume that the number is extremely small. For one thing there is Galton's "Law of Regression" according to which any deviation from the normal tends to be levelled out in succeeding generations. For another when we examine the histories of gifted families we find, even in those which have the highest proportion of gifted members, that the ones who are most highly dowered are not usually found in the direct line; nor does ability most usually descend directly from father to son, it tends to miss a generation. These vagaries which surprised the earlier students of family history are easily explained in the light of recent discoveries about the mechanism of inheritance and the transmission of recessive characters. In the classes which can ensure education and opportunities for all their members the wayward and zig-zag appearance of talent or genius has no harmful social effects, but it means waste of human capacities amongst the classes who can only win security and opportunity by an effort enduring through two consecutive generations. The commonplace son of a clever father may lose the position on the fringe of the middle class which his father won, so that the brilliant grandson begins life in the working class.

There is a third factor besides the special selection for ability within the middle class and the slowness of the upward movement into the middle class which frustrates the potentialities of the poor, and this is that the fight for a minimum of economic security and prosperity, or for a position of influence and power, is not a struggle for which all the supremely able are fitted. Not all gifts, nor perhaps the finest, bring with them qualities which count in the struggle for economic survival. Political ability apparently does so, but here the venal have such an advantage over the honorable that the open way to success is of doubtful value to society. We shall never know how many men of virtue and statesman-like gifts fail to obtain

a governmental position, for although political ability is not necessarily found together with vanality, political success often is. Ruthlessness and cunning in discrediting opponents, and unscrupulousness in deceiving a public which is willing to be deceived, are characteristics which make success easier. It is sometimes said that the temptation to conduct of this kind assails rich and poor alike equally. I should admit that it assails both, but deny that it assails them equally. The aristocrat may scheme for money; the plutocrat may scheme for power; the wealthy aristocrat may scheme for more money and more power; but they are none of them driven to their schemings by anything but their own vices. The poor man is often compelled to scheme and sell himself if he would realise ambitions which are in themselves just and honorable. Disraeli, whatever his other claims to our praise, was undoubtedly less principled than Gladstone. He himself very likely supplied the explanation for this inferiority when he was talking of his early struggles and said bitterly that it had taken him forty years to fight his way to the position to which Gladstone had been born. Certainly the history of the Parliamentary Labour Party has illustrated depressingly the subtle and crude temptations to treachery to which Labour M.P.s are exposed.

The artist and the scientist are tempted and handicapped in much the same way as the politician. Often they must choose between doing good work and making a financial success of their lives. There is an easy market for artistic facility and scientific facility and talent, provided by industry for science, and by advertising and commercial writing or illustration for art. The man who has a private income can afford the luxury of integrity and decline to commercialise his gifts, whereas the man who is dependent upon what he earns cannot. The public usually receives an original work of art with

uneasy mockery. If Epstein had not inherited money he would have had to alter his style or starve. Joseph Conrad and D.H. Lawrence were driven by their poverty to do work which they knew to be inferior to their capacities. This drawback is added to the other disadvantages which hamper a boy from a working class home. It is difficult to develop artistic or scientific gifts to a degree which can be described by the word genius in the atmosphere of a working-class home, of an elementary school, or even of a State Secondary school. This is a point which I shall discuss in greater detail later. Here I shall say only that the full development of genius is rare, so rare that we must believe that ny one of a hundred accidents can prevent its fruition; one of these accidents is probably the restricting and uninspiring atmosphere which accompanies extreme poverty; another is the temptation to compromise and commercialise which presents itself with irresistible persuasiveness to the young man who has climbed with effort and sacrifice out of the ranks of manual workers. Often the sacrifice has not been only of his own ease and pleasure, it has been of his parents' and brothers' and sisters' comfort. His debt to them, as well as his own moral exhaustion, may urge him to establish himself in some remunerative dead-end.

The worldly advantage is always with those who are prepared to compromise; this affects the ambitious in every career and of every degree of wealth, but what is a vicious luxury for those who are born to prosperity is a cruel necessity for those who are born to poverty, with the result that only the worst of the wealthy are venal, but for the poor the choice is often between venality and obscurity; those of them who are without the gift or the will for exploiting either others or themselves are unlikely

to figure in the history books. Wealth is seldom enough to secure success, but poverty is nearly always enough to veto it. Ward (110), Odin (76), Fiske (31) and Allen (1.) writing about the origins of great men, emphasise that an unfavourable environment can forbid the rise to fame. Many things can constitute an unfavourable environment; some of them are the direct result of poverty, and others are commonly found in its presence.

These drawbacks attendant upon poverty make it improbable that the child from a poor home would achieve the highest ranks of success unless he possessed qualities of character as remarkable as his qualities of mind. But they do not preclude the possibility that even if these drawbacks were removed, innate inferiority would prevent the rise of those who are born in poverty. I shall, in the next section, try to estimate the amount of ability which is to be found amongst the poorer classes in comparison with the amount which is to be found amongst the wealthier classes. This will involve dealing with intelligence tests and considering the influence which environment exercises upon their results.

THE INHERITED SUPERIORITY OF THE WEALTHIER CLASSES 2.

Inter-class Differences as Shown by Intelligence Test
Results.

We have seen in what proportions the wealthier classes as compared with the poorer classes achieve distinction or comfort; it remains to consider how far this superiority of position is due to superiority of intellect. This leads us to the problem of measuring intelligence. How far is the intelligence discovered by school work an indication of innate ability? How far is success in school work a sign that a child is capable of success in life? How much more accurate are intelligence tests than school work or achievement in life as a measure of ability?

The answer to the first two questions seems to be that there is for most kinds of work a relationship between success in school and success in afterlife. It is obvious that there should be a connection between success in school and success in the academic careers which demand a higher degree of the same kind of gifts as school work, but the same connection is also found in the non-academic careers. This supports the opinion about the nature of intelligence which is now most commonly held, that it is a "general" factor, capable of being used for all purposes, and that although specific abilities which give their owner special powers are found in addition to it, yet "G" will enable its possessor to achieve a moderate degree of success in most spheres, and the absence of "G" is fatal to all but the meanest ambitions. Gifford (37) examined the salary records of 3,806 employees of the American Telephone & Telegraph Company and compared their salary records with their achievement in college. He found

that the top 10 per cent. in college work equalled 17 per cent. of the highest salary group, whereas the lowest 33 per cent. in college work constituted only $4\frac{1}{2}$ per cent. of the highest salary group. He found that on the whole the men who showed good scholarship rose steadily in salary, whereas the men who had poor academic records remained stationary for long periods and in some cases suffered reductions. This result suggests that the same kind of ability can be used for both academic and executive or administrative work, but it does not actually prove anything, for qualities of character may have been responsible for both college and professional success or failure.

I think that it is safe to take school work as providing some measure of a child's capacity to deal with the problems of life, for the evidence of investigators on the subject is supported by the common experience of teachers. Gone is the happy fallacy that the child who is a dunce possesses usually some compensating gift such as musical or artistic ability, or a practical capacity such as organising power, or a bent for mechanical or domestic usefulness. Often children who are academically stupid do possess some of these gifts, but on the average of large numbers the children who are best at their ordinary lessons are best on the other counts as well, and one suspects that when clever children do badly at non-academic pursuits, it is often because they realise that they are considered to be relatively unimportant, are not interested in them, and do not really try. I myself have tried every method in dealing with relatively inferior secondary school children in an endeavour to find out whether their inferiority was due to their depressing knowledge that their presence in a C or D form implied that they were stupid and inferior. I have beguiled them with easy and interesting work; I have flattered them into self-confidence; but good-nature is the only one of

the mental and moral virtues in which I have found them equal to the A forms. And good-nature is not enough. They have remained forgetful, dependent, fickle in their interests, and second-hand in their opinions, and one would turn to the members of A forms if one were looking for a child who could be trusted to make a success of any task from cookery to statesmanship.

But I would maintain that success in after life provides a slightly better index of intelligence than school work, provided that we judge success in life by the social standards of the sphere into which the child was born. There is a more urgent compulsion to effort in life than there is in school. Clever children usually work hard because they enjoy both using their brains and receiving praise, but clever children are the first to penetrate the lies, half-truths, intellectual confusions and blandishments with which the teacher, who cannot threaten the grimmer punishments of hunger or unemployment, tries to spur on his class, and school work does not reflect accurately the ability of children who do not work hard because they are lazy, nor of clever children who can keep a place at the top of their form without undue effort and who are not ambitious enough to aim higher than this. Then, too, school work is cumulative; a child may do badly one year because he has been idle or absent through illness during previous years. School work measures steady, prolonged work as much as the innate ability to do well if the motives and circumstances conducive to hard work are present.

It is the realisation that school work does not provide an accurate account of ability as distinct from achievement which has led to the evolution of intelligence tests. Let us be definite from the first about the limitations of intelligence tests. The tests are only valid for children of the same age and of similar environ-

ment, because every shade of difference in a child's experience is liable to affect the result of the tests, and tests can, in fact, estimate only intelligence plus experience. This is too often forgotten, and the tests are treated as if they were as absolute in their decision as a weighing machine should be in deciding weight.

Tests are allowed to be valid only for judging the intelligence of children speaking the same language, and once this principle has been granted, finer gradations of the same law must be admitted. An Esquimaux child, fresh from Labrador, tested by the Stanford-Binet through the medium of English, would fail ignominiously. Even if he understood a single word of the questions he would be ignorant of the subjects upon which the questions were asked. The injustice is less obvious and extreme, but nevertheless unquestionable when a child who has never been shown picture-books by devoted grown-ups is judged less intelligent than the child from a bookless and illiterate home because he cannot pick out and name the feature that is missing from a picture of a human face; similarly the old^{er} child who has no knowledge of the word "criminal" or who has had no literary training in antonyms loses a mark in a test when a child who has lived in a more cultured world wins one.

What constitutes a "similar environment"? We cannot say that the child whose parents amuse themselves with bridge and the B.C.C. has the same environment as the child whose home goes in for the easy geniality of darts, a pint of beer, and fish and chips. Still less can we say that the son of a bishop enjoys the same civilisation as the child from a slum whose father is a chronic drunkard or a thief and whose mother supplements the family budget by prostitution. The child from the episcopal palace probably inherits more intelligence than the child from the world of failure

and crime, but even if by one of the incalculable tricks of inheritance he fails to do so he will probably test higher. His background is literate, and since language is the medium of most of the tests and the subject matter of many of them, facility with words will give him an enormous advantage. His interest in a variety of things and problems has been stimulated; he has been shown books, taken to zoos and exhibitions, gone for railway and motor journeys. Aldous Huxley has said:- Sensuous impressions are the basis of all mental processes; the more things we have touched, seen and heard the richer will be our imagination, the more we will have to think about, and the greater the number of ways in which we shall be able to think." The child from a middle class is given a wealth of experience compared with the child from a slum; here it is relevant to give the facts which Burt (13) collected which illustrate the prison like limitations of children from very poor homes. Burt found that of the 350 children in the lower standards of a London school in a poor district:-

46% had never seen an animal other than a dog,
horse and cat

16% thought a sheep larger than a cow.

23% had never seen a patch of grass, even in a
council park.

64% had never travelled in a train.

98% had never seen the sea.

We know how much excitement and delight children build out of simple experiences such as seeing a giraffe or a railway engine, or going to the sea, and can guess how great a deprivation their minds and imaginations suffer from being denied these things. Segal (98) who taught in a slum school within a few hundred yards of Paddington main line station, found that hardly any of his pupils had ever been to the station and that

a school visit to it was for them a thrilling treat.

Not only is the slum child hindered by lack of experience. He is hampered by living in an atmosphere of day-to-day necessities. His mother has no time or energy to think of much beyond the everlasting tasks of cooking and washing, and the recreation of a gossip or an occasional tiff with a neighbour. His father comes home tired with manual work, disinclined and untrained for mental effort, wishing chiefly that the children should be quiet whilst he has his tea. If the child asks questions no one can answer them. There is no one to read to him the fairy stories which would give him a vision of a world beyond the crowded streets, or to tell him tales of endurance and adventure which would arouse his ambitions and reveal a world of achievement beyond the sphere he inhabits. Books are looked upon as strangers, and a liking for reading as a morbid taste, for people have a defensive reaction which makes them think that the education and background which produced themselves is the best possible one for their children. Sometimes it is due to a grudge which they bear against those whom they know to have had better opportunities than themselves; sometimes it is a complacent self-justification, the attitude of generals and City councillors at school prize-givings who point out with inverted pride that they were never any good at lessons, implying that the boys and girls should realise in contemplating them that learning is quite unimportant for the serious purposes of life. Educationalists who are present on these occasions must have often been comforted by the reflection that contemplation of the generals and civic dignitaries is likely to lead the children they address to a different conclusion.

This distrust of intellectual values is not incompatible with a pathetic desire to do the best for

their children, and parents will make heroic sacrifices to send their children to a secondary school, not because they appreciate the more profound advantages of education, but because they see it as a vocational training for white-collar employment. Such parents are not much more able than others to give their children the mental background and stimulus which will enable them to make the best of their school opportunities. The school alone must do for the poor child what school and home combine to do for the child from a cultured middle-class home.

Then, too, the child from a poor home has no solitude; he has no garden where he can moon about and think and play entirely on his own; there is no quiet room in the house where he isolates himself with a book. Too much solitude is bad because it makes a child egocentric and unable to co-operate, but too little of it is almost as harmful in its retardation of maturity.

I do not catalogue the defects of intelligence tests in order to maintain that they are valueless. They do indeed reflect all the inferiorities of a poverty-stricken environment, but they reach nearer the heart of ability than school marks, for they depend less than these on the previous activities of the child, and they represent the results of much careful and skilled experiment which has pushed them by slow stages further from experience and nearer to innate capacity. And in one important respect they avoid a distortion of the truth of which both school results and the records of after school success are guilty. Intelligence tests do not demand the kind of staying power which is dependent upon physical health. Both success in school and success in a job depend to a large extent upon mental, moral and physical endurance. A child who finds that he feels out-of-sorts or restless and irritable after a bout of hard work, ceases to work and sits passively in his desk

during the hours of school. It is in this way I believe that a slight degree of malnutrition, or a lack of good air and sleep retard the intellectual progress of children, and, in the same way, lassitude accounts for much of the inefficiency of adult labour. Intelligence tests, because they evade the endurance factor, are a better indication of ability than success in school, but for this very reason they are likely to be a worse indication of success or failure in after-life. The actual correlation between the results of the Stanford-Binet tests and teachers' estimates of intelligence is, according to Burt, (14) .51. And Schwesinger (97) reports that the correlation between school work and intelligence test scores are in the neighbourhood of .60. These are not very high correlations when one considers the nature of the factors which are being compared.

The limitations of the tests are fully recognised by the men and women who have formulated them and used them. All authorities on intelligence testing recognise the difficulty and allow for it with different degrees of emphasis. I have only emphasised it because there is a tendency in educational writings to divorce criticism of the tests from sociological and educational opinions based upon test results, and therefore tests are sometimes taken as providing an absolute standard for assessing intellect. In order to illustrate the influence which experience can exert I give the Binet-Simon tests, not for each year, for that would take a disproportionate amount of space, but for every alternate year, and I suggest that the reader should exert his mind to consider how previous experience, intellectual encouragement, and contact with adult minds, is likely to alter the answers which a child gives.

Binet-Simon Tests

Age 3

Should know sex.

Should be able to point to nose, eyes and mouth.

Should know name and surname.

Name knife, key and penny.

Enumerate simple items in pictures.

Age 5.

Perform triple order. (1) Put key on table. (2) Shut door. (3) Bring book.

Repeat sentence of ten syllables.

Give age.

Copy square recognisably.

Distinguish morning and afternoon.

Name four colours.

Repeat four numbers

Compare two widely differing weights.

Age 7.

Recognise missing features in pictures. (Mouth, eye, nose, and arm.)

Add correctly 3 pennies and 3 halfpennies.

State difference between concrete objects. (Fly - Butterfly, Wood-Glass, Paper -Cardboard)

Write from dictation "Three pretty girls".

Age 9.

Name months of the year.

Name nine commonest coins.

Read a simple passage and recall six items out of twenty.

Define in terms superior to use:- Horse - Chair - Mother - Table - Fork .

Age 11.

Explain absurdities (Such as "Cyclist killed; may not get better")

Answer difficult questions such as "What to do if late going to school" or "What to do before undertaking something important."

Give sixty words in three minutes. (Note taken of kind words, and method on which chosen.)

Age 13.

Resisting suggestion. First showing three pairs of lines of unequal length and saying "Which is the longer of these two lines?" Then showing two pairs of equal length and saying "And of these?"

Solving problem. "One day a woman, walking in Epping Forest, stopped still, terribly frightened. Then she hurried to a police station and told the policeman that she had just seen a - What do you think it was she saw?"

(Answer insists that it must be someone hanged to be completely correct. Does not count as superior in intelligence the child who says "It was only an old bit of sheet really", though such children are given another attempt. Other answers are accepted if intelligently explained.)

"My next door neighbour has had three visitors. First a doctor called; then a lawyer; then a clergyman. What do you think has been happening there?"

Age 15.

Drawing from imagination cuts in a folded paper as they will appear when the paper is unfolded.

Defining abstract terms: 1. Pleasure and happiness
2. Poverty and misery
3. Evolution and Revolution.

In almost every one of these tests we can see the force of experience. In the age 3 tests the child who has been shown picture books, or who has had a penny held up to it by proud parents who ask "What is this?"

Say its name," who is asked by polite visitors to tell them his age has an immense advantage; the age five tests, with two exceptions are open to the same objections.

The age seven tests begin to show the learning of school as well as the learning of home. Definition and dictation are largely a matter of practice in the various ways of using words. And what of the child who has never seen a butterfly? In the seven year old tests and in all the tests for later ages the tests are based not merely on the material of life which comes the way of every human being, but on the specifically intellectual activities which are conditioned by the mental training of the home and the school. Necessarily so, since the mind does not operate in a vacuum. Nor does the Stanford revision of the Binet-Simon scale, which is the test usually used in England, improve matters very much. By the Stanford revision eight-year-olds are expected to define in terms superior to use:- balloon - tiger - soldier - football, and the nine-year-old is expected to put three words into a sentence. Three of the words are:- deserts - rivers - lakes. Deserts, rivers and lakes are outside the actual life of many children, and ability to deal with them depends upon academic education and the reading of romantic literature in which they occur. Deserts especially are not met in a form which a child would recognise in either the London streets or the English countryside. The Stanford Revision for age twelve demands the definition of abstract nouns "Pity" "Revenge" "Charity" "Envy" "Justice", words which a child meets in the course of his literary, not his practical, life.

The Binet-Simon eleven-year-old questions err chiefly by an ambiguity. An intelligent child may be more bewildered than a stupid child by the possibilities and complications which may come to his mind in connection

with the question what to do before undertaking something important. How many adults would answer this question in a way which would be commonly accepted as correct?

For the later years Burt maintains that the Stanford Revision which Terman drew up is a great improvement on the Binet-Simon scale, but this, too has a marked linguistic bias. Perhaps this is justifiable. The ability to pick up words and ideas in a verbal form is one of the fundamentals of intelligence, and in later years the power for abstract thought is the criterion of intellectual ability, so that it is right that the tests should search for this quality. Nevertheless they do so chiefly on the basis of the child's knowledge; the tacit foundation for all the verbal and linguistic tests, and of most of the mathematical ones is that certain knowledge is assumed for the various ages, and the children are asked to prove their intelligence by the use they make of their knowledge. No allowance is made for accidental variations in the kind and amount of information which the subjects of the tests may possess. When the American public found to its horror that according to the Army tests the average mental age of the adult population was only thirteen, and when Burt reported that:- "In testing random samples of working men and youths, both in settlements in London and Liverpool, and in rural districts of Warwickshire I have met numerous individuals managing the affairs of their household and discharging the requirements of their occupation, who yet could not pass sufficient tests to attain even a mental age of eight," - the facts stated did not reflect very harshly on the Anglo-Saxon race on either side of the Atlantic. They reflected only the close relationship between intelligence tests and the kind of mental training given to a child in school. Burt's subjects and the American soldiers might

have tested higher if they have been tested during their school-days. If the adult middle class population of Great Britain were asked to sit for the School Leaving Certificate examination without being given some months of special coaching there would no doubt be quite a spectacular number of failures.

The slum child undoubtedly has knowledge which the protected child lacks. He is more likely to know the way to make a penny go furthest, the kind of things grown-ups say when they quarrel, and he will have the linguistic advantage of knowing the Anglo-Saxon words of four letters which are not much used in polite society. This will help him very little in the tests.

Burt has shown that there is a difference in the test results of schools of different social status, and I give his table showing the amount of the differences.

Chronological Age	Average No. of Tests Passed		Average Mental Age	
	Superior School	Poor School	Superior School	Poor School
7 -	44.4	31.2	8.9	6.1
8 -	48.5	36.3	10.1	7.2
9 -	51.0	42.6	10.6	8.4
10 -	54.3	46.8	11.5	9.6
11 -	56.2	50.4	12.1	10.3
12 -	57.5	52.9	12.8	11.0
13 -	59.3	55.2	13.7	11.7
14 -	60.5	54.8	14.2	11.6

N.B. All the schools used for compiling the above table were elementary schools, the "Superior" ones from well-to-do districts, the "Poor" ones from poor districts.

Even those who expect to find that the well-to-do are more intelligent or more efficient in the use of their minds than the penurious may be surprised to find that the difference between the classes is so great, especially as the classes concerned are not widely different in their social and economic status. Are we to take this table as one more proof of the inherent superiority of the wealthy, or to the favourable environment and extra information which gives them an advantage in the tests? Burt has published a table giving his estimate of the effects of social and economic status upon the results of the tests. I think that his estimate is just, and so far as I know it has not been challenged. It is particularly relevant to the problem which we are considering because it deals with the influence of poverty or affluence upon each test, and the important fact emerges that poor children do worse in some tests, better in others. If children from poor homes did slightly worse in all the tests we should perhaps be justified in suspecting the cause to be the general inferiority of their intellect; but when we find that in some tests they are actually better than more fortunate children we know that environment is taking a hand in the game, and differentiating between the rich and the poor.

I find it interesting that children from poor homes resist suggestion better than the wealthy, for it reveals a great deal about the world they inhabit. It implies that the poor have learnt young to be suspicious of appearances and slow in accepting good faith.

There is another characteristic of intelligence tests which illustrates their fallibility and shows that we must take them as being only approximately correct and this is that the different scales are not uniform in their results. Cohen (23) found that children who were

Differences in order of difficulty for children of differing

<u>Social Status</u>		<u>From Durt.</u>	
<u>Test</u>	<u>Difference.</u>	<u>Test</u>	<u>Difference</u>
Picture (interpretation)	+6	Differences (King-	
60 words	+5	President)	0
Reading (2 facts).....	+5	Months.....	0
Dictation	+5	Morning & Afternoon ...	0
16 Syllables.....	+4	13 Pennies	0
Reading (6 facts).....	+4	3 Numbers	-1
Differences (abstract)....	+4	4 Numbers	-1
Sentence building 1.....	+4	7 Numbers	-1
Picture (Description).....	+4	Sex	-1
Transcription.....	+3	2 Numbers	-1
Age	+3	Differences (Concrete)	-1
Four Colours.....	+2	Absurdities	-1
26 Syllables.....	+2	Diamond	-1
Definition (Class).....	+2	Square	-1
Re-Statement.....	+2	5 Numbers	-2
3 Rhymes.....	+2	Reversed triangle	-2
Sentence building 2.....	+2	Naming	-2
Mixed Sentences.....	+2	Easy questions	-2
Definition (Use)	+2	Date	-2
Definition (Abstract).....	+2	Missing Feature	-2
Days of Week	+2	Folded Paper	-2
Surname.....	+2	Two Weights	-2
10 Syllables.....	+1	Difficult Questions ...	-3
4 Pennies.....	+1	4 Coins	-3
Fingers.....	+1	Triple Order	-3 $\frac{1}{2}$
6 Syllables	+1	Change	-4
Picture (Enumeration).....	+1	Divided Card	-4
Count 20 to 1	+1	Memory Drawing	-4
Right and left.....	+1	5 weights	-4
Comparing Faces.....	+ $\frac{1}{2}$	9 Coins	-5
6 Numbers.....	0	Pence and Halfpence ...	-5
Pointing.....	0	Problems	-6
2 Lines.....	0	Suggestion	-10

(The + sign indicates that the test is relatively easy for children of superior social status; the - sign indicates that the test is relatively easy for children of inferior social status.)

(This table gives the relative, not the absolute, advantages and disadvantages of social status. The plus and minus signs cancel out at 76 $\frac{1}{2}$. E.K.)

mentally subnormal did better on the Dearborn tests, which are largely performance and minimise the linguistic factor. Clearly the Stanford Revision, the Binet-Simon scale and the Dearborn tests are looking for different qualities and have not arrived at a scientifically standardised decision as to the nature of intelligence. Pintner (8/) says that "The wide application of intelligence tests to all types of people in all types of communities has revealed individual differences far greater than were thought to exist. Different sections of a city differ greatly in intelligence, and so do different rural communities. We find differences in the average intelligence of the inhabitants of different small towns, and the same is probably true of cities, and of states, and of larger sections of the country." Is it likely in a country such as the United States, formed recently from a wide variety of the more enterprising of the European peoples, exposed to rapid development and change that in so few generations stupidity of a measurable degree could have established itself even in such a notorious asylum for stupidity as Tennessee? We must believe that when test results show one town to be more intelligent than another, or one section of a city to be more intelligent than another, or one rural area to be more intelligent than another, that the difference lies not so much in the intelligence as in the functioning of the intelligence, and that hookworm or malnutrition on the one hand, cultured homes and the stimulus of hope and opportunity on the other partly account for the results.

There are many other influences which affect the tests besides economic status, and I cannot summarise them so well as Burt has done. He says:- Besides the two essential items, the intelligence he has inherited, and the age he has reached, a host of subsidiary conditions

inevitably affects his score. Zeal, industry, good will, emotional stability, scholastic information, the accident of social class, the circumstance of sex - each and all of these irrelevant influences, in one case propitious, in another prejudicial, may impair or improve the final result. To glance at the scale is to foresee its facile impressionability. Girls will figure well on the verbal tests. Errand boys and paper boys will answer smartly in the money tests. The sullen child will at first refuse to answer altogether. The excitable child, through haste or confusion, will blunder into every trap. The truant and the invalid, having missed many lessons, will fail where print is to be read or a pen is to be used. The busy little housewife from an illiterate home, who there carries out the most intricate duties, will yet be unable to put those duties into words. The solitary child of a cultured family profiting perhaps rather by daily intercourse with educated adults than by special inborn gifts, will respond with an information and a phraseology beyond anything he would spontaneously invent or acquire."

In my next chapter I write about the evidence which has been collected to show the difference in innate intelligence between the different economic classes. Necessarily the results are given in terms of intelligence test scores, since no better measure exists. I should like the reader to note how small the differences between the classes are, and remember that the tests are biased against the child from a poor home. It would be foolish to attempt to assess the amount of the bias and to weight the results proportionately, because the factors involved are too various both in kind and degree to admit of scientific measurement with the tools which we at present possess. In the next chapters there is evidence that material circumstances, either by altering

the capacity of the mind, or by controlling the conditions for the effective use of the mind, can profoundly alter the intelligence as it is recorded in test scores or revealed by the demands of life.

THE INHERITED SUPERIORITY OF THE WEALTHIER CLASSES. 3.

The test results suggest that, whatever the individual cases of injustice, on the whole the middle and upper classes hold their superior position by the right of superior ability. The I.Q. of children whose parents belong to the occupational groups of work which makes the highest demands upon ability and which gives the most generous reward is above that of children whose parents belong to the lower occupational groups. Duff and Thompson (28) found that in Northumberland there was a correlation of .28 between the intelligence of the children and the social status of the parents; Gray and Moshinsky (42) working in London, found a correlation of .25, with the very small standard deviation of .008. On the next pages I give tables from Jones and Carr-Saunders⁽⁵⁾ which show the force of class in deciding intelligence as shown by test results. We can see from the tables that there is a definite difference between the scores of the children from the different occupational groups, a difference which environment during school years can slightly decrease, but cannot eradicate; the order of rank is not changed, even after three years, but the difference is not great and may not be greater than can be explained by the physical retardation of children from poor homes during the early years of rapid development; we are told that the school lettered "H" was for children of a higher social class, children therefore, who enjoyed a better environment probably at school and certainly at home; if we remove this school from the table and compare only the children of humbler origin we find that after three years in the institution there is no correlation between the occupation of the parent and the intelligence of the child.

I.Q.s of children between $9\frac{1}{2}$ and 14 years according to years in Institutions and Occupational Class of their Parents.

1. Years of Residence 1-3

School	Occupational Class					
	Occs 1 - 3		Occ. 3		Occs. 4 - 5	
	No.	I.Q.	No.	I.Q.	No.	I.Q.
A	54	101	47	100	66	97
B	9	105	7	-	57	96
C	-	-	9	91	11	95
D	4	-	12	87	36	84
E	1	-	10	96	41	95
F	-	-	-	-	-	-
G	-	-	4	-	10	98
H	48	115	1	-	-	-
All	116	107	90	97	221	94

Occupational Class	1	2	3	4	5
I.Q.	108	105	97	94	94

Notes:-

Two of the schools were Industrial Schools for boys.

One (H) a school which catered for a higher social class.

Occupational Groups

1 and 2 Professional and Clerical.

3 Skilled Manual Labour

4 and 5 Unskilled Manual Labour.

I.Q.s of Children between $9\frac{1}{2}$ and 14 years according to
years of Residence in Institutions and Occupational Class
of Parents

2. Years of Residence 3 - n

School	Occupational Class					
	Occs 1 - 3		Occ. 3		Occs. 4 - 5	
	No.	I.Q.	No.	I.Q.	No.	I.Q.
A.	6	-	8	-	9	99
B.	15	94	17	-	48	97
C.	11	101	8	-	16	95
D.	-	-	2	-	6	-
E.	3	-	4	-	43	96
F.	-	-	2	-	9	92
G.	-	-	2	-	2	-
H.	50	112	-	-	3	-
All	85	106	43	98	136	96

Duff and Thompson found that the average I.Q. for the children they examined whose fathers were engaged to in teaching, writing, giving orders, or selling, was 106.6; the average I.Q. for those whose fathers were engaged in mending, moving, growing, or tending any kind of goods it was 98.6. A difference of eight points; this number should be born in mind, for later I shall give the difference that the removal of American children from poor homes to good homes made int their intelligence test results, and it will be seen that the difference amounts almost to eight points.

The most thorough work on this subject is that of Gray and Moshinsky, (42) who tested 9,000 London school children by the Otis test and averaged the results obtained by children whose parents followed different callings or belonged to different occupational groups. Their work is revealing not only because of the detail in which it is given, but also because of the nature of their classification of the parents economic status, and the distinction which they made between highly remunerative positions in the world of business and professional work which is a less remunerative but which demands a higher degree of skill and training. They claim that their classification is a compromise between the methods used by Duff and Thompson, Taussig, Thurston and Burt, and they say that "the basic ground of the differentiation is the nature of the work performed, but we have not hesitated where it seemed advisable to combine it with differences in average income and 'social status' as it is conventionally assessed." I give their classification in detail, since it is necessary for understanding their result:

Category A 1. Those whose incomes are deriv
ownership of property, except
shops etc. High grades of bu
possibility and remuneration.

- A. 2. Smaller business owners. Entrepreneur activity, but lower income level.
- B. Professional occupations, demanding a high level of skill and educational equipment.
- C. Minor professional and other highly skilled occupations, Chemists etc. Also technical, supervising, and administrative workers in businesses who fall below the "A" categories.
- D. Clerical and commercial employees. Not exclusively "salaried".
- E. Manual workers.
 - E.1. Skilled
 - E.2. Unskilled.
 - E.3. Fatherless.
- F. Unknown or miscellaneous.

When we examine the results which the children obtained by the Otis test we find that there are limits to the extent to which financial success is linked to intelligence. The relative inferiority of Class A.1. in the kind of reasoning which the test demands goes to support my argument that the finer abilities of the mind are not necessarily conducive to success as it is most commonly measured. I judge by worldly success, and this is most surely reckoned in terms of money. There are other, better currencies, but they cannot be counted in terms of statistics, and in a sociological work of this kind I cannot balance ethical values against financial ones; I can only show that there is a superficial relationship between moral and worldly achievement by demonstrating that a moderate degree of material success is usually a condition of moral and mental development.

Results in Order of Average I.Q. of Categories.

<u>Group.</u>	<u>Average I.Q.</u>	<u>No. of Children</u>
B.	124.7	674
A.1.....	118.8	722
D.	114.6	1,206
C.	112.5	882
A.3	107.1	582
E.1	101.8	2,367
A.2	100.9	135
E.3	100.4	266
F.	96.3	854
E.2	95.0	1,259

Unlike the results of Duff and Thompson this more subtly classified list does contain one or two surprises. It is surprising that wealth is not more closely related to ability, and that the humblest kind of shopkeepers appear to exceed in ability the ones who are in a larger way of business, and that the clerical and commercial employees, whose work is mostly mechanical and none of it highly paid, have more intelligent children than the minor professional and highly skilled occupations of class C. This shows how inexactly society distributes its rewards, that intelligence does not always receive its best favours, and that the methods of selection for success have the cruel wastefulness which we expect to find in natural processes, but which we do not expect to find in natural processes which are under human control.

We have seen how few of the children from the lowest economic classes climb to eminence. When we examine the categories which Grey and Moshinsky found tested most highly (page 85) we get some indication of the number of clever children who are unlikely to achieve a position in which they can make full use of their gifts because

they belong to the classes out of which it is difficult to climb, and within which it is difficult to do the most valuable and complicated kinds of work.

Table showing children from different categories who tested higher than the average for the highest group.

(Professional Group B.)

Average = 124.7

Occupation	Category	Number	I.B.
Teachers (University)	B.	15	147.5
Diplomatic Service	B.	2	145.0
Colonial Administrators	B.	7	138.7
Advertising Workers	D.	4	137.4
Insurance Agents	D.	32	137.2
Seamen (Unspecified)	F.	22	135.7
Teachers (non-Elementary)	B.	59	135.5
Civil Servants (Unspecified)	F.	75	135.3
Engineering Draughtsmen	C.	7	133.3
Professional (Miscellaneous)	B.	16	133.1
Estate Agents, Surveyors & Auctioneers.	A. (1)	28	129.3
Officials of Public Bodies	C.	37	129.2
Consultant Engineers	B.	3	128.7
Scientists	B.	21	128.7
Civil Servants (Customs & Tax Officers etc.)	C	75	128.4
Journalists	C.	19	127.9
Editors	B	18	127.8
Barristers, Judges, Solicitors	B	57	126.4
Teachers (Elementary)	B	56	126.2
Officials (Industrial & Commercial)	C	45	125.3
Merchants	A (1)	133	125.0
Clerical, Civil Service	D	118	124.9
Doctors	B	114	124.8

We see from this that ordinary seamen have children more intelligent than the average for highly skilled and trained professional men; we find that the A 2 Group of moderately successful business men is not represented at all; we find that clerks, few of whom are well paid, are heavily represented, whilst the children of clergymen are conspicuous only for their

absence and will in fact be found far down the complete list of Gray and Moshinsky's results. When we examine the complete list we find that officers in the army have children no more intelligent than those of the men in the ranks, and that chauffeurs have children more intelligent than those of any category of the army. We find that brokers, jobbers, building contractors, financiers and manufacturers have children less intelligent than those of tailors, of metal trades workers, and of the poorest grades of clerks, and children very much less intelligent than those of elementary school teachers. Farmers' children do not come much above those of unskilled manual labourers. Even if intelligence tests judge justly between the rich and the poor, society rewards with power and comfort by some other criterion than intelligence.

Let us consider some of the implications of these results. First, it is undeniable that the averages for a group as a whole are to a certain extent misleading. Classes C and D and E.1, which do not test very high on the average, contain within them occupations which are followed by intelligent men, more intelligent, if we can judge by their children, than wealthy financiers, and this points to the limited significance of averages. Not only does the average for each class contain within its wide deviations of averages for different occupations, but the individuals tested vary so widely that the average figure for their group is relatively unimportant. We gain little knowledge of an economic unit if we are told that the average income of the people within it is £500 a year. It may be a stable and contented community in which few incomes are less than £200 and few are more than £600 a year; or it may consist of a handful of millionaires and a multitude of paupers. On the same principle, although it may appear just on an average

result that the children of unskilled labourers should be offered more limited opportunities than the children of lawyers, because they are assumed to be less able to make good use of their opportunities, yet when we examine the range of intelligence shown by the children of the lower occupational groups we find that in even the poorest homes there are occasionally born children who have an I.Q. of over 140. The existence of children from poor homes who despite their unfavorable environment, can win scores as high as this, together with the absence of people from the poorest homes amongst the successful indicates that the educational ladder does not prevent the frustration of the intelligence of the slums. I give on the next page tables from the work of Duff and Thompson which show that the wide variations of individuals within the groups make the group averages of little use to the educationalist who is concerned with individuals rather than categories. The implication of the fact that the individual range is so much greater than the range of group averages is that many children have intellectual gifts far above or below what is the average for their social and economic status. The American army tests showing the relative mental grade of men recruited from different occupations revealed similar deviations. The average for each trade conformed with the demands of the work in skill and training, but the individual variations within each group were enormous. This is a more exact illustration of the inaccuracy and injustice with which social forces decide status and monetary reward, for here we are dealing with the men themselves, not merely with their children, and the chance and incalculable influence of inheritance does not obscure the results.

The figures which I have quoted in this chapter indicate that social status and intelligence test results

Tables from Duff and Thompson, showing, 1, average I.Q.s of children whose fathers belong to different occupational groups, 2. range of distribution of intelligence amongst school-children.

1. <u>Occupations of Fathers</u>	<u>Average I.Q. of Children</u>
Professional.....	112.2
Managerial....	110.0
Higher Commercial.....	109.3
Army, Navy, Police, Postmen	105.5
Shop-keeping.....	105.0
Engineering	102.9
Farmers	102.7
Building.....	102.0
Metal-workers, Ship-builders.....	100.9
Miscellaneous Industrial Workers	100.6
Miners and Quarrymen.....	97.6
Agriculture (All classes)	97.6
Low Grade Occupations.....	96.0

2. Distribution of Intelligence in Northumberland School-Children

<u>I.Q.</u>	<u>Number</u>	<u>% of Total</u>
140 & over	16	0.1
130 - 139	129	1.0
120 - 129	732	5.4
110 - 119	2,275	16.7
100 - 109	3,598	26.5
90 - 99	3,536	26.0
80 - 89	1,972	14.5
Below 80	1,337	9.8

These tables demonstrate the wide range of individual variations compared with the range of group variations.

related on the average for large numbers, but that there are so many exceptions to the rule that the rule is almost valueless. I do not propose to go into the vexed question of the nature of inheritance, for that is ground upon which only fools, and geneticists who carry the necessary equipment for the journey, dare to tread. Since, however, I am dealing with the effects of poverty upon children I must attempt to assess the part which their environment plays in deciding their final ability and their achievement. Would the children from poor homes have tested higher if they had enjoyed the careful nurture of the middle-class child? Will they succeed as well in life as the children with similar ability who are born into homes which give them the advantages which money can buy in health and education? The only people who can supply the answer to these questions are identical twins for only they have identical inherited qualities. Many pairs of identical twins have been studied, but most of them are useless for my purpose because besides their identical inheritance they have had during their formative years an almost identical environment. But Newman (74) and Muller (70) have collected material about 10 pairs of identical twins who were reared apart, and who therefore combine similar inheritance with dissimilar environment. The fact that there are so few cases is less important than may at the first thought appear, for if only one of many pairs showed widely differing abilities, health and character as a result of a different environment, we should know that environment is able to alter the destiny of a child, and that inherited qualities cannot be trusted to secure opportunities commensurate with ability.

I shall not give details of all the ten pairs of twins. Five of the pairs were very similar in their educational attainments and their intelligence test results.

But it is notable that most of these five pairs had been brought up in homes of much the same degree of prosperity and civilisation, It is even more notable that as many as five of the ten pairs differed to a considerable degree ~~of~~ in the measurable intellectual qualities, and it is necessary that I should give details of the lives of those that differed, to show the stultifying effect which poverty and a restricted intellectual atmosphere exercise upon the development of the mind.

One of the pairs of identical twins which Newman examined were separated when they were eighteen months old, reunited when they were eighteen, and studied by Newman a year later. They were girls. One, called A was adopted by an English family and brought up in a crowded London home. She had been very delicate when she was a baby, and her constitution was not improved by malnutrition during the war years. She had suffered chronically from bronchitis, tonsilitis and occasionally from rheumatism. Her training was chiefly of domestic science character, but she had nine years at school followed by a secretarial course. The other girl, O. had received more advantages than A. for she was brought up as the only child of a Canadian family which had a higher social status than A's London guardians. She, too, had nine years of schooling, but in her case the years were devoted to academic work of the kind done in the best kind of American institutions. In some ways environment did not alter their constitutions and characteristics, for like her sister O suffered from tonsilitis, bronchitis and rheumatism; and like her sister she was indifferent to males and interested in church work.

Results of Investigation

	<u>A.</u>	<u>O.</u>	<u>Difference</u>
I.Q. (By Stanford-Binet)....	84.9	96.9	12 points
Educational Age			1 yr. 7 mths.

We must remember that O's trans-Atlantic background would help her a little in the tests, for A's education had been English and she had only been in American for a little more than a year; but this does not entirely explain the difference, for O. did better than A. even on the International Group test, which is far more independent of background knowledge than the Stanford-Binet; a difference as great as 12 points I.Q. and over eighteen months in mental age can only be explained on the grounds that the training of one had given her a fuller development of her mental powers.

The second case which I shall describe is that of "E" and "G", girls who were separated when they were eighteen months old, were reunited when they were twenty and then lived together for seven years before they were examined. E. had been brought up with a foster brother and sister in an uncultured home in Indiana; the mother was unable to read, and the father only read newspapers. The mother had poor health, and E. was often kept away from school to nurse her and do the housework, with the result that she only reached the fifth grade and left young. She worked in a shirt factory for some years, and then got work which she liked better in a dentist's office. G. was more fortunate. Her foster-parents were not well educated, but they were ambitious for her; they died when she was seven years old, but they had provided for her education, and at their death she went to a convent school. When she was eleven she went to the Academy, and in due course to the normal school. She graduated at eighteen in academic subjects, and also in "piano". She taught in fourth grade of a parochial school for two years, and later became a doctor's assistant, or, as we should say in England, secretary, and added to her income by giving piano lessons in the evenings.

The test results were, as one would expect, in G.'s favour:

	E.	G.	Difference
I.Q. (by Stanford-Binet)	65.6	77.6	12 points
Educational age			3 years 7 months

This result demonstrates admirably the superiority of tests to mere knowledge as an indication of innate ability, for in this case the test results are more equal, or less unequal, than the educational ages. This result also suggests that disadvantages of the early years cannot be eliminated by conditions later in life, for seven years of living together and for part of the time doing similar work did not destroy G.'s early superiority.

C. and O. were boys who were separated when they were two months old, reunited when they were twenty-two, and examined soon after. C. had been a sickly baby, and did not walk until he was two years old. His foster-father was a painter by trade, who was not highly educated and possessed very few books; he was in moderate financial circumstances, and had no children of his own. Until he was thirteen C. lived in a small Illinois town; then the family moved to Lake City in Michigan. His brother O. had for a foster-father a telegraph operator who was intelligent and read a great deal although he was no better off financially than C.'s foster-father. He could not give O. many educational advantages, for his work led him from one place to another, and O. attended a variety of small country schools. Both boys graduated from the High School at eighteen, after which C. trained as a motor salesman and O. began to study architecture, but he left this training to become a postman. When they were tested the difference between them was found to be comparatively small:

	C.	O.	Difference
I.Q.	99	101	2 points.
Educational Age			1 Year 4 Months

The difference in I.Q. is negligible, but the difference in educational age is worth considering, for the advantages of O. in formal education were very slight. Did O. learn more because he had better physical stamina? Or did he learn more because he was brought up in contact with more active minds?

The next case which is worth recording here is that of Mabel and Mary, who were brought up in homes of similar financial and social status, but after they were six years old Mabel lived on a farm in the country and Mary in a town. Mary was smaller and weaker physically than Mabel, and had had influenza every winter between the time she was seventeen and the time she was examined, at twenty-nine years old; During her childhood she had been quite healthy, and it is possible that the difference in the girls' health was an environmental one, and that town life caused Mary's tendency to ill-health. Neither girl was interested in reading, but whereas Mabel would not do any academic work Mary had always been fairly high up in her form; when she left school she became a clerk in a store and gave piano lessons in the evenings. When they were examined the difference between them was as follows:-

	Mabel	Mary	Difference
I.Q.	85.5	106.2	17.7 Points
Educational age	14.5	17.3	2 Years 7 Months

The last case of which I shall give details is the one which has most social significance. One identical girl twin, M., was adopted into a highly cultured professional home where she was given every encouragement in her education, and met and talked to many intelligent people. The other, R., was brought up in the home of a foreman over labourers, where there were no cultural interests and hardly any social life.

R. was very shy, subservient, and timid, whereas M. was very easy, talkative and friendly. The results are exactly what one would expect in the circumstances.

	M.	R.	Difference
I.Q.	92	77	15 Points
Educational Age.	14.7	13.6	1 Year 1 Month
International Group Test.193		155	38 Points.

I do not suggest that the differences between the twins were all of them caused by poverty; in one case health may have been the decisive factor; in another contact with a foster father, who, although he was not rich, was interested in books and ideas; in another the relatively stimulating effect of town life appears to have made the difference; in another human contacts and social intercourse. But poverty carries with it the drawbacks which handicapped the weaker of each of these pairs of twins; poverty is related to ill-health; poverty narrows intellectual opportunities and intellectual interests; poverty causes shyness and timidity. Not in every case upon which Grey and Moshinsky, and Duff and Thompson based their results, but in enough cases to alter profoundly their averages, the children of parents who followed humble and ill-paid callings must have tested far below the scores which they would have obtained if they had the advantages of "R." in the last of the cases which I have cited.

The material which has been collected from the study of identical twins has thrown many new lights upon human reactions to circumstances. Lange (56) examined thirteen pairs of identical twins who had come into conflict with the law, and he illustrates how environment may lead similar beings to totally dissimilar lives. He records two cases in which one

brother married a virtuous and strong-minded woman and his twin a woman without force of character in the one case, in the other one who belonged to the world of crime. The men who married respectable and determined women became respectable citizens; their twin brothers went to the bad. Their very similarity in weakness led to the dissimilarity of their careers. What was remarkable in most of Lange's subjects was not the likeness but the unlikeness of the pairs in important mental and moral attributes.

The influence of environment in promoting intelligence is shown by Burk's inquiry (12) into the relationship between a parent's income and the child's I.Q. He found that the relationship between the intelligence of foster children adopted into a home and the intelligence of the breadwinner of the home was within .01 of the relationship between the breadwinner and the breadwinner's own children. And Freeman, Holzinger and Mitchell report (97) that children moved from very poor homes to good foster homes in Chicago had improved to the extent of 7.5 points I.Q. by the Stanford-Binet test after four years in their new homes, and that the children who were adopted at an early age resembled the own children of the foster-parents to the extent $r. = 0.25 - 0.37$. This is, of course, less than the intellectual resemblance found amongst siblings, which averages .5, but it shows a high degree of correlation, and it gains in significance when we learn that the intellectual relationship of siblings adopted into families of widely differing social and cultural status reached only 0.19. Seven point five points is a considerable difference in I.Q. Duff and Thompson found only eight points between children of middle class parents and children of wage-earners. It is a difference which would bridge the gap between

Grey and Moshinsky's class D and class B, or between their classes E.3 and A.3, or between E.2 and A.2. We cannot relate exactly the results of these three investigations because different tests were used for each of them, but a comparison of their results shows the fallacy of thinking that children from different economic classes are tested on equal terms.

The differences between the identical twins reared apart, Burk's investigation, and the work of Freeman, Holzinger and Mitchell make the whole structure by which it seemed as if wealthier classes had proved their inherent superiority appear a little unsteady, and on their evidence we must be prepared to suspect the validity of intelligence tests and to discard theories of class superiority which are founded upon them. We are left with no more than the unproven theory that able families tend to rise, incompetent ones to sink, to support the idea that wealth implies ability, and we have seen that the rise of ability is hindered by many factors which make the process of inhumane and wasteful. What have we to set against the evidence that intelligence tests reflect education and experience as much as they reflect innate ability? Only the evidence of Jones and Carr-Saunders on children in institutions whose parents had been of different social and economic status; and we have seen that when we removed from the table the school whose members had had a relatively good environment from the time of their birth, the intellectual differences between the occupational groups were insignificant. Lawrence (58) found a class difference in I.Q. results between children in orphanages who were of different social origin but who had lived for some years in a similar environment. I have not quoted or discussed her work because the orphanage children, who were many of them illegitimate, were selected for the unscrupulousness or incompetence of their parents and do not represent a fair

sample of the population. They are especially unreliable as material for judging class differences because illegitimacy is more easily avoided by the wealthier classes, and is regarded as more shameful by them. The illegitimate offspring of the wealthy are in institutions for motives of concealment; the illegitimate offspring of the poor are there because their parents cannot support them. With only material of this kind to support it, the case for the inherent superiority of the wealthy if it depends on intelligence test results, must be dismissed for lack of evidence. In the past we have in this matter presumed the prisoner to be guilty. In view of the fact that the children of the very poor are almost unknown in the ranks of the eminent, and that intelligence tests which do not flatter the abilities of the poor, show that children of very high intelligence are occasionally born into poor homes, we must, until we receive evidence to the contrary, assume that either there is no intellectual difference between the classes, or that any difference which exists is negligible.

In the controversy between the exponents of heredity on the one hand and of environment on the other as being the decisive factor in deciding human destiny, the environmentalists have at least, amongst many faults of woolly-headed, parish-magazine idealism, made fewer extravagant claims for their theory; their responsible leaders have never claimed more than that an adverse environment could prohibit the development of ability and genius. Inheritance decides the possibilities, nurture the achievement. I think that the efforts made by educational psychologists to state in mathematical terms the proportional influence of heredity and environment are misleading and useless, because people's gifts are too various to be averaged down in this way. The only safe generalisation on the subject is that the higher the possibilities the greater the part played by environment in deciding the final result. If society uses its best

skill for the task it can, perhaps, turn the border-line mental case into an independent wage-earner who can do the work of a manual labourer. The same degree of skill used for the rearing of a highly gifted child may lift him from some hum-drum employment to a sphere in which he does work which no one else could do and by which humanity is permanently enriched. I claim that poverty is usually the preventive agent which frustrates the gifted.

An adverse environment can take any forms. There are subtle spiritual enemies which destroy the will and intelligence of the rich, but these cases are special and are the concern of the biographers. An adverse environment as it affects most people is crude and simple in its onslaught; it attacks on many fronts at once through the single agent, poverty. Poverty saps physical vitality through exposure to privation; it limits educational achievements and imposes upon a child the necessity to earn rather than to learn; it narrows the horizon and deprives the mind of contact with like minds. How does it do this, despite the educational ladder which theoretically provides a way upwards for the child who proves his worth by passing the series of examination which lie along the route? To find the answer to this it is necessary to consider the ways in which poverty weakens and stultifies the children who live under its shadow.

First I shall write about the physical disabilities which accompany poverty and are caused by it; then I shall write about the relationship between physical debility and mental inefficiency; finally I shall write about the flaws in the structure or working of the system which in theory enables a child in Great Britain to get the education which it deserves.

Conclusions to Part 1.

1. In the past men who have been successful either in gaining positions of honour and power, or in creating artistic and scientific works of genius, have, with very few exceptions, been members of the wealthier classes. This implies either that men of high ability are rarely born into the poorer classes, or that men of ability who are born into the poorer classes fail to realise their potentialities.
2. Despite the creation since 1870 of the "educational ladder" we find that the ratio of the poor who achieve the highest ranks of success is practically unaltered.
3. Movement from a low social and economic class to one slightly higher is not uncommon. It therefore appears that although the poor do not attain the higher ranks of success the educational ladder enables children from the poorer classes to achieve a moderate degree of success.
4. Intelligence test results suggest that the superior achievement of the wealthier classes is due to superior innate ability. But intelligence tests are not valid as a measure of the relative intelligence of members of different economic classes because they reflect the influence of experience and acquired knowledge, and the experience and knowledge of the wealthier classes is more varied and extensive. This is shown by the results the examination of identical twins reared apart.
5. We must therefore discard as unproven the theory that socio-economic status and ability are related.

P A R T 2.

THE PHYSICAL EFFECTS OF POVERTY UPON CHILDREN

ASSESSMENT OF MALNUTRITION

When we consider the assessment of malnutrition we find that we are in difficulties because doctors have not yet done their part in stating the problem. They have not, in fact, evolved any standard for measuring the nutrition of children. It is true that a prolonged and careful medical examination which includes taking note of height and weight, of the quality of the flesh rather than its quantity, of the health of the hair and skin, of the reaction of the eye to light, of the state of ossification, the haemoglobin content of the blood, and chest and arm measurements, will give a doctor a very good idea whether a child is, or is not, nourished as it should be. But such an examination takes time, and six minutes is all that a school Medical Officer can usually allow to a child. What is needed is a mechanical measure which would enable doctors to grade children with all the certainty and something of the speed of a fisher-girl sorting herrings.

Mr. Le Gros Clark in the book National Fitness (22) which he has recently edited publishes a table which suggests that doctors are far from working to a uniform standard in grading the nutrition of children as the Board of Education requires them to do. The Board recognises four categories of nutrition:- "A" = Excellent. "B" = Normal. "C" = Slightly Sub-normal. "D" = Bad. Mr. Le Gros Clark gives the classification of the school-children of a number of unselected areas together with the unemployment figures for each area, and the results are surprising in that there seems hardly any correlation between the two sets of figures. It is reasonable to assume that the unemployment figures of an area give some indication of its economic welfare, and we know from other statistics whose interpretation

is unquestionable, such as the mortality rates, that health and poverty are closely related, therefore when we find that Accrington, with 25 per cent. male unemployment has 0.7 children classified as excellent and none at all as bad, whereas Grimsby with 19 per cent. male unemployment has 39 per cent. classified as excellent and 0.4 as bad we suspect that one doctor grades his cases more steeply than the other. And when we find that Wiltshire has 6.9 classified as excellent and 6.2 as bad, Gloucestershire 30 per cent. excellent and none bad although it has more unemployment than Wiltshire we suspect that the doctors concerned have different standards of assessment.

This does not necessarily mean that some doctors are disgracefully casual and others needlessly rigid in their requirements, though no doubt they vary widely between these two extremes; the explanation lies more likely in the natural tendency to accept as normal what one finds to be usual. Doctors, through their constant contact with sickness are apt to form a low standard for judging health, and this is particularly true of doctors who have worked for some years in poor districts. They are likely to accept as normal a degree of pallor, underweight, and poor muscular tone which would pass unnoticed in an elementary school, but which would arouse strongly adverse comment from the matron of a residential school. Interesting examples of different standards of assessment are given for Birmingham in the "Health of the School-Child. 1937" and the Board of Education is evidently well aware of the problem. An experiment on this subject was undertaken in 1935 by Dr. W.F. Betenson, Medical Officer of Breconshire⁽⁸³⁾. He noticed that he tended to place nearly five times as many children in the C category as one of his colleagues, and he therefore arranged for six Medical Officers to examine and classify

independently of one another the same hundred children, fifty boys and fifty girls. Two of the Medical Officers concerned came from Breconshire, two from Carmarthen, and two from Glamorgan; they classified the children as follows:-

Carmarthen M.O.s	classified	37	and	41	as	subnormal
Breconshire	"	"	20	"	28	" "
Glamorgan	"	"	13	"	15	" "

The fact that Glamorgan is a relatively poverty-stricken district, Breconshire a moderate one, and Carmarthen a relatively prosperous one bears out the argument. It is notable that in no less than seventeen instances the same child was classified as excellent by some and slightly subnormal by others.

Variations in standard of development in districts so nearly related as the three concerned in this experiment must be accounted for by environmental explanations, but differences found in districts more widely separated geographically and racially may be caused by inherited characteristics, and we must be cautious in assuming that under-weight and pallor are invariably and necessarily due to poor nutrition. An editorial article in Nature on November 11th, 1939 points out the danger of making statements as to under development among children, in which a general standard correlating age with development is applied without knowledge of the norm in terms of racial differentiation:- "Obviously the norm of the tall, fair Nordic of East-Anglia is inapplicable to the short, Mediterranean type of the West, yet the short dark operative of the industrial north of England has been characterised as stunted by generations of factory life without inquiry or knowledge as to the capacity of the type for development in optimum conditions." The article goes on to point out the difference in anthropometric records of

Aberdeen children as compared with those of Edinburgh and Dundee, a difference for which it is difficult to account on environmental grounds.

There is another complicating factor which concerns us less, except that it prevents us from using freely records which come from the past. Physical standards not only vary from place to place, they also vary from time to time. There is evidence that the average height of the population of Great Britain is rising, and it has been estimated that the increase may be as much one centimetre every twelve and a half years; we do not know whether this is due to the increased consumption of food which Sir John Orr shows to have taken place during the last hundred years, or to genetic mutation.

Since it is clearly difficult to say on a cursory medical examination or on an arbitrary calculation of height-weight-age ratio whether or not a child is properly nourished, I propose to use for the following discussion a standard of assessment not based upon the examination of children, but upon the B.M.A. estimate of the food that is necessary for a child of a given age. This diet has its disadvantages as a criterion of adequate nutrition, but it is more satisfactory than the classification of the Board, which besides uncertainty and variety in its standards raises a larger issue by its distinction between the normal and the excellent. Is it normal for children, unless they are suffering from some ailment or disease, to be in a nutritive condition which is less than excellent? How far should we consider the 85.5 per cent. of the children in England and Wales who in 1938 fell below the excellent to be constitutionally incapable of reaching it? In a residential school in which all the children are well fed would this distinction between the normal and the excellent still be found to exist? It is, of course,

the same problem of the confusion between the normal and the usual.

Clearly the question needs clarifying. It would be absurd to take the boundary between category A and category B as representing the upper limit of malnutrition, for no doubt many of the children in category B are excellently fed and healthy but happen to be neither large nor red-cheeked. Nor can I take the boundary between categories B and C, for medical research has shown that more than 11.1 per cent., the number in the subnormal groups, suffer from malnutrition. The Board is necessarily concerned with discovering the number of children who, judged by existing standards, are in need of extra nourishment, not with absolute standards of how children will develop in ideal conditions. It is questionable whether an investigator is justified in compromising in this way; nevertheless I have compromised to the extent of accepting, with certain reservations, the B.M.A. diet as sufficient, although it does not pretend to be more than a minimum diet and falls far short both of the ideal and what a child in a middle class home would usually receive.

THE B. M. A. MINIMUM DIET

Most investigators who inquire into dietetic conditions in Great Britain base their work on the minimum scale of nutrition drawn up by the B.M.A. in 1933⁽¹⁰⁾. This diet is calculated in terms of cost for people of different ages doing work demanding different degrees of effort. For estimating the relative needs of people of different ages the B.M.A. used the table of units worked out by Cathcart and Murray⁽¹⁷⁾ and published by the Medical Research Council in 1931. For any accurate computation of food consumption a table of this kind is necessary, as the "Per caput" method of counting the needs of a child of two as equal

to those of a manual labourer is obviously misleading. Cathcart and Murray's scale is based on the calories which should be present in a sufficient diet, a measure which was considered to be sound some years ago, but which is now recognised as having serious limitations, for a diet may be adequate on a caloric basis, but deficient in such constituents as protective foods, vitamins and minerals. It will, in fact, measure under-nutrition, (now fortunately rare in Britain) but not malnutrition with any certainty. It would however be very difficult to construct a scale which would reflect the many factors concerned in correct feeding, and for lack of a better scale we must accept this one which gives the following relative values for sex and age:-

Man.....	1.0
Woman.....	.83
Boy over 14	1.0
Girl over 14.....	.83
Child 12 to 14 .....	.90
Child 10 to 12 .....	.80
Child 8 to 10 .....	.70
Child 8 to 8 .....	.60
Child 3 to 6 .....	.50
Child 2 to 3 .....	.40
Child 1 to 2 .....	.30
Child 0 to 1 .....	.20

The Commission of the B.M.A. in 1933 recommended for a man doing moderate work a diet containing 3,400 calories a day, and said that this should include:-

100 grams protein. (of which 50 grams should be first class animal protein.)

100 grams fat.

500 grams carbohydrates.

This diet has been criticised both for being over lavish and for being insufficient. The Ministry of Health in 1931 published a memorandum which recommended a diet of 3,000 calories a day including about 100 grams of protein of which only 37 grams need be first class,

(49)
 and Hutchinson and Mottram, agree that this is enough. Cathcart and Murray,⁽¹⁷⁾ writing in 1936, consider that as few as 2,400 calories are enough. A joint conference of the B.M.A. and the Ministry was held to consider the apparent discrepancies of their diets, and it was decided at this conference that the diet of the latter was intended for people leading comparatively inactive lives, and that there was "Not any fundamental disagreement between the two bodies on matters of fact." But there is some disagreement between these two bodies and the League of Nations Union, which published a report on nutrition, for the League made a rather higher estimate of the minimum necessary for health and efficiency than the British authorities for almost every constituent in a dietary, and maintained that children from twelve to fourteen years old need 66 grams of first class protein. This is a large difference from the point of view of expense, for the only cheap form of first class protein is cheese, and it is difficult to induce children to eat large quantities of cheese. The modern tendency is to stress the importance of the protective foods which are nearly all of them expensive, and as I shall describe later, Dr. Fraser Bockington's inquiries suggest that children cannot develop to their physiological maximum unless they receive more than the amount of protein allowed by the B.M.A. diet.

When one compares the B.M.A. diet with that used in prisons and in the army in peace time it appears unlikely that it errs on the side of being over lavish. The army figures are difficult to use because besides being given 2,812 calories a day the men were given 2½d a day to spend on food. In prisons men on sedentary work are given 3,103 calories a day, including 101 grams of protein; men on other than light labour are given 3429 calories, including 108.13 grams of protein. Extra food is given to the men

engaged on building, and to the men in the national prisons who do more heavy work. No one has ever suggested that prisoners are very well fed, and it is commonly assumed that their rather poor condition when they return to freedom is partly due to the qualitative deficiencies of prison diet. Yet we find that all prisoners who are doing other than sedentary work are given food in excess of the B.M.A. diet. And we must remember that the class of men in civil life who earn the smallest wages and who therefore are most likely to live below this standard contains the manual labourers, whose work demands a high output of physical energy, and who produce the highest proportion of children.

The B.M.A. diet does not claim to fulfil the requirements of Sir John Orr's optimum; it is a minimum; its cost by the prices of 1938 and the best possible marketing conditions works out at about 7s. 2½d. per unit per week; Fraser Bockington (7) remarks that in the marketing facilities available to the ordinary housewife it would probably cost nearly 8s. And Crawford (25) is emphatic that in practice the diet would cost more than this. Although the diet is a minimum, the B.M.A. prepared a second line of defence, a "Standard B" diet containing 1,000 calories and 13 grams of protein a day less. This diet is indeed a minimum. Adults who are doing very light work or who are unemployed may be able to live on it for a long period without serious ill-effects, but very few children could develop satisfactorily without better food than this.

I print below the diet given by the B.M.A. as fulfilling the requirements of the Standard A. It reckons on the cheapest marketing and is a diet which calls for some intelligence, energy and good cooking on the part of the housewife, and many house-wives cannot or will not

fulfil these conditions. We know that door-steps of bread and margarine and jam form the staple diet in many households, and for a wife who was not an active and wise shopper a diet as good as this would come to more than eight shillings.

	d.
Beef..... 1 lb.	8
Minced meat... $\frac{1}{2}$ lb.	4
Bacon $\frac{1}{2}$ lb.	4
Corned beef... $\frac{1}{2}$ lb.	3 $\frac{1}{2}$
Ox liver $\frac{1}{4}$ lb.	2 $\frac{1}{2}$
Eggs 2 oz.	1 $\frac{1}{2}$
Cheese $\frac{1}{2}$ lb.	4 $\frac{1}{2}$
Milk 1 $\frac{3}{4}$ pints	6 $\frac{1}{2}$
Fish (cod).... $\frac{1}{4}$ lb.	2
Butter $\frac{1}{4}$ lb.	3
Suet $\frac{1}{2}$ oz.	$\frac{1}{4}$
Lard $\frac{1}{4}$ lb.	2 $\frac{1}{2}$
Bread 7 $\frac{1}{4}$ lbs.	16 $\frac{1}{4}$
Sugar 1 lb.	2 $\frac{1}{2}$
Jam $\frac{3}{4}$ lb.	3 $\frac{1}{4}$
Potatoes 5 lbs.	6
Peas (dried)... $\frac{1}{4}$ lb.	$\frac{3}{4}$
Tea..... $\frac{1}{4}$ lb.	4
Oatmeal..... 1 $\frac{1}{4}$ lbs.	1 $\frac{1}{4}$
Rice..... $\frac{3}{4}$ lb.	$\frac{3}{4}$
Syrup..... $\frac{1}{2}$ lb.	2
Cabbage..... 1	1
Beans (butter) $\frac{1}{4}$ lb.	$\frac{3}{4}$
Barley $\frac{1}{2}$ lb.	1
Fresh greens and fruit.	7d worth.

In 1938 in the best possible marketing conditions this diet cost 7s. 2 $\frac{1}{2}$ d. The writer lived on it for a week. She was found that it was perfectly satisfying, and more than sufficient in bulk, but found that it made heavy

demands on the digestion in return for the sense of nourishment that it gave. The small proportion of butter allowed to the bread and the absence of margarine was unpleasant, and so was the small amount of greens and fresh fruit. In some months very little of this kind of food can be bought with sevenpence and the result for many people is that aperients have to be bought instead; these may be cheaper but they are certainly less healthy. Milk and eggs were also much missed. What impressed the writer most was the amount of careful and experienced cooking that was required to produce this food in a palatable form. No woman who was tired, or overworked, or in indifferent health would do it.

One serious criticism must be made of this diet. It is recognised that for children there is no substitute for milk, and a pint a day is generally recommended for a child. The diet prepared by Bockington only allows a quarter of a pint per unit, so that even if a child were receiving a third of a pint a day for five days of the week at school it would still fall short of its milk quota. Nor is it possible to provide for much more milk unless more than eight shillings a week is spent on food, for milk is expensive, and is in practice one of the first economies of a working class household. Makings (65) found that families in a Yorkshire mining area bought one-fifth of a pint per head daily; but a fall in their incomes of 6d. per head reduced their milk consumption to about one tenth of a pint daily. Other investigations on the same subject have found much the same results.

The absence of fresh fruit and greens is also serious; and certainly reflects the dietic habits of

COMPOSITION OF THE DIET (PER DAY) BY INCOME GROUPS OF THE POPULATION.

—	Group I.		Group II.		Group III.		Group IV.		Group V.		Group VI.		Standard Requirements per Unit of Population.	
	grams.	per cent.	grams.	per cent.	grams.	per cent.	grams.	per cent.	grams.	per cent.	grams.	per cent.	grams.	
Protein :														
Plant . . .	40.9	64.5	43.5	57.2	44.0	52.6	43.8	49.0	42.8	45.3	40.5	41	—	
Animal . . .	22.5	35.5	32.5	42.8	39.6	47.4	45.6	51.0	51.6	54.7	57.8	8	—	
Total	63.4	100.0	76.0	100.0	83.6	100.0	89.4	100.0	94.4	100.0	98.3	100.0	68	
Fat :														
Plant . . .	20.9	29.2	17.9	18.1	14.5	13.2	13.3	11.0	12.2	9.4	11.1	7.9	—	
Animal . . .	50.7	70.8	80.9	81.9	95.1	86.8	107.3	89.0	118.3	90.6	130.4	92.1	—	
Total	71.6	100.0	98.8	100.0	109.6	100.0	120.6	100.0	130.5	100.0	141.5	100.0	98	
Carbohydrate	348	—	381	—	395	—	403	—	406	—	396	—	—	
Minerals :														
Calcium . . .	0.37	—	0.52	—	0.61	—	0.71	—	0.83	—	0.95	—	0.6* 0.9†	
Phosphorus . . .	0.81	—	1.04	—	1.17	—	1.28	—	1.42	—	1.54	—	1.23	
Iron . . .	0.008	—	0.0099	—	0.011	—	0.012	—	0.0127	—	0.0137	—	0.0115	
Vitamin A . . .	Sher-	Inter-	Sher-	Inter-	Sher-	Inter-	Sher-	Inter-	Sher-	Inter-	Sher-	Inter-	Sher-	Inter-
Units.	man	national	man	national	man	national	man	national	man	national	man	national	man	national
Units.	Units.	Units.	Units.	Units.	Units.	Units.	Units.	Units.	Units.	Units.	Units.	Units.	Units.	Units.
Units.	1,548	774	2,500	1,250	3,248	1,624	4,030	2,015	4,420	2,210	5,750	2,875	3,800	1,900
Units.	57	838	78	1,134	90	1,314	108	1,577	128	1,832	158	2,323	95	1,400
Calories . . .	2,317		2,768		2,962		3,119		3,249		3,326		2,810	

* Minimum for positive balance.

† Minimum plus 50% for safety margin.

Fig I

Table from "Food, Health and Income" showing the composition of the diet (per day) by income groups.

Table II. Family income less than 35s. Comparison of expenditure upon food with that in the diet recommended by the B.M.A. (1933) report for a child 8-10 years. Expenditure per unit per cent of the standard diet

Constituents of the diet	Number of children in family					Total
	1	2	3	4	5	
Meat, eggs and fish	148.0	74.8	60.7	61.5	48.9	
Milk (fresh and tinned)	68.0	48.3	59.2	62.3	25.2	
Cheese	44.4	48.1	27.8	29.6	61.1	
Tea, coffee and cocoa	77.8	94.4	88.9	97.2	30.6	
Bread	156.0	79.4	146.1	131.4	86.3	
Butter and margarine	155.5	172.2	238.9	69.4	133.3	
Sugar	70.0	106.7	113.3	90.0	60.0	
Jam	93.0	—	113.3	213.3	146.6	
Vegetables	153.3	146.7	144.4	155.0	62.2	
Fruit	18.5	—	18.5	—	—	
Various	141.6	158.3	100.0	—	—	
Total	99.4	72.6	82.5	70.9	45.8	
Animal protein	71.1	64.0	54.2	57.1	40.5	
No. of families	3	2	2	1	1	9
No. of school children	3	3	3	3	3	15
No. of children under 15	3	4	6	4	5	22

Containing 10% of total children

Table III. Family income between 35 and 45s. Comparison of expenditure upon food with that in the diet recommended by the B.M.A. (1933) report for a child 8-10 years. Expenditure per unit per cent of the standard diet

Constituents of the diet	Number of children in family							Total
	1	2	3	4	5	6	7	
Meat, eggs and fish	149.6	151.9	107.4	100.7	50.3	68.9	42.2	
Milk (fresh and tinned)	62.6	49.7	47.6	50.3	29.9	42.9	27.9	
Cheese	38.9	61.1	63.0	77.8	42.6	57.4	44.4	
Tea, coffee and cocoa	152.8	116.7	130.6	97.2	77.8	61.1	66.7	
Bread	139.2	85.3	115.7	121.6	123.5	128.4	107.8	
Butter and margarine	183.3	166.7	166.7	144.4	175.0	91.7	52.8	
Sugar	146.7	106.7	93.3	90.0	90.0	96.7	40.0	
Jam	100.0	73.3	80.0	33.3	106.7	60.0	73.3	
Vegetables	124.4	157.8	120.0	40.0	86.7	60.0	53.3	
Fruit	11.1	9.3	1.85	—	20.4	—	—	
Various	445.8	166.7	204.2	179.2	54.2	125.0	29.2	
Total	111.3	90.9	85.1	76.6	63.1	64.5	43.3	
Animal protein	93.4	93.1	75.0	75.0	40.5	56.2	36.3	
No. of families	4	9	10	3	3	2	1	32
No. of school children	4	15	20	6	10	9	5	69
No. of children under 15	4	16	30	12	15	12	7	96

Containing 43.8% of total children

Fig. II

Table made by Dr. Bockington, published in the Journal of Hygiene, September 1938, showing the failure of families at the lower wage levels to reach the B.M.A. standard diet.

the poor. A letter in the "Times" of September 18th 1939 reports that children evacuated from Liverpool slums refused to eat vegetables because they had never tasted them. This is one instance of many in which evacuation has revealed to the middle class the unhealthy and savage circumstances of the slums. Lack of vegetables and fruit means a lack of vitamins and minerals, and probably accounts for the prevalence of anaemia amongst the children of the poor.

A study of the figures given by Orr (77) bears out the theory that eight shillings a week is the minimum upon which an adult can be adequately fed. I reproduce his table of the food values which he considers necessary for health and the values which are bought at the different income levels. (Fig.I) For calculating standard values Orr used the analytical data supplied from the following sources; Sherman for calcium and phosphorous, Peterson and Elverhjem for iron, Fredericia for vitamins; he also used conversion figures compiled at Glasgow University or the Rowlett Research Institute; the relative dietic requirements of people of different ages worked out by Stiebeling for the Government Bureau of Home Economics, U.S.A. which I have given above, was the one he accepted. This table has not been superseded, and Crawford, writing in 1939, says that he thinks it is correct except that possibly it over estimates the quantity of iron needed by the human system.

It can be seen from the table that Group three is the lowest income group to reach the B.M.A. standard. It is true that group two has enough proteins, fats and, presumably, carbohydrates, but it is deficient in minerals and vitamins, and is deficient when calculated on the basis of calories. Now group three is the group with an income of from fifteen to twenty shillings a head, and which spends an average of eight shillings a week on food;

this supports the theory that the minimum of food necessary for health can be bought for eight shillings a week. The lack of minerals and vitamins from which all but the two wealthiest groups suffer is easily explained when we study Orr's graphs of expenditure on different kinds of food in the different income groups. The amount spent on fruit rises from 2d a week in group one, which only spends 4 shillings per head per week on food to over 1s.3d. in group six which spends fourteen shillings a week on food. Only 1½d is spent by group one on vegetables whereas group six spends eight pence. Group six drinks nearly five times as much fresh milk as group one. The graph giving the consumption of eggs also shows a very steep curve; group one eats 1½ eggs a week, group six eats four eggs a week.

The eight shillings a week standard is also supported by Bockington, who finds that the housewife tends to be satisfied when she is able to spend this amount, and that once she has reached this standard extra income does not mean a proportionately rapid increase in the expenditure on food. It appears as if this sum is enough to provide a diet which although it is far from being an optimum is enough to maintain physical health and efficiency at a standard which is not exacting and which is based on existing averages of physical development rather than the standard which would probably be achieved in a universally excellent environment. I am assuming for my assessment of the number of children who are underfed, that those who are being fed on the eight shillings a unit basis are not suffering from malnutrition, and that those who are spending less than this on food are being handicapped in a greater or less degree in their growth or health. This is a modest standard, but one which will find many more

children to be inadequately fed than the Board of Education statistics.

Number of Children in England and Wales Falling Below
The B.M.A. Minimum Diet.

Now that we have arrived at a definite idea of the cost of a diet which should suffice for the needs of school children it is possible to estimate approximately the number of children in England and Wales who are suffering from malnutrition. Any result at which we arrive must be approximate, for whilst we can assess the number of families who must be poorly fed however well they spend their incomes we cannot assess the number who are poorly fed because of inefficiency or misfortune other than financial misfortune in their homes. We can therefore assume that our results will tend to minimise rather than exaggerate the extent of malnutrition. The number of mothers who are lazy, or stupid, or ailing, and who therefore run their houses badly, and of fathers who spend an undue proportion of their incomes on drink or football pools cannot be reckoned. Nor can we reckon the number of families, held by some observers to be considerable who spend money on 'appearances', good curtains, high rents, and neat clothes, which should be spent on food. The last point is important because it is likely that a high proportion of intelligent children come from these ambitious homes. Somerville Hastings (43) writes:-

"It was surprising to find that some of the worst cases of undernourishment came from homes which were scrupulously clean and tidy, and in which the children were well turned out. On the other hand some of the raggedest children were much better fed. The conclusion was reached that in cases in which, after the rent had been paid, the rest of the money available was spent on

replacing clothes, on cleaning materials, or for other purposes, sufficient did not remain to buy the food which was physiologically necessary."

These cases of malnutrition may appear at the school medical examinations carried out by the Board of Education, but they will not appear in the social surveys such as those of Caradog Jones, Ford, Inman, Llewellyn Smith and Seebohm Rowntree which are the best available sources for the subject and from whose material I propose to estimate the number of children who are not properly fed because their parents cannot spend the necessary amount on food.

I shall begin by giving unscientific but illuminating observations made by teachers about the nutrition of the children in their schools, and I shall then proceed to consider the matter statistically.

Charles Segal (98) gives the usual menu on which he discovered that his class of backward children in a London slum school lived. He found by questioning the children about their meals that they were fed very much like this:-

Breakfast

Bread, butter (margarine), tea; or porridge.

Dinner.

School dinner or twopenny pie or a pennyworth of chips. The more fortunate had an egg or sausage on toast or potatoes.

Tea.

Bread, butter (margarine) tea.

The richer ones had a large meal of sausages and mash, or corned beef and pickles, jam or fried fish.

Supper (if any)

Bovril, or cocoa, or chips.

This is a diet which contains a surplus of starch and a noticeable lack of proteins, fats, vitamins and minerals. We see that the children often drink tea. Burt says that the drinking of strong tea is one of the

causes of malnutrition because it has a harmful effect on the digestion and makes children less hungry for food and less able to assimilate the food which they eat. The drinking of strong tea by children is in itself a result of poverty; for one thing it is much cheaper than the milk which the mothers know to be better for their children, and if it is argued that it would be both healthier and cheaper if the children were given weak instead of strong tea, the answer is that the poor like the stimulus of strong tea, they feel better after it, so that the habit of drinking strong tea has become established in the classes which from the point of view of both money and health can least afford it. Tea for the working classes is an acrid, dark orange coloured beverage; they do not understand any other way of drinking it, and the children are helped from the same pot as the adults. The children of the well-to-do hardly ever drink tea; for breakfast they have milk, or cocoa made with milk; at "tea" time they have milk, and many of them have another glass of milk before they go to bed. The fact that poor children drink strong stewed tea at all these times is probably one of the most important dietetic differences between the classes.

A graphic account of the feeding of her pupils is given by Miss Boyce (q). This account is the more impressive because Miss Boyce is concerned with the mental rather than the material welfare of her children, and is an educationalist rather than a social reformer. Any educationalist of the distinction of Miss Boyce must be both a psychologist and a sociologist, but in the case of Miss Boyce the bias is in favour of the mind and the classroom as distinguished from the body and the community. She writes about the health of the children in her school:-

"There physical condition is extremely poor; there are three or four bonny children in each class of forty, and these are not always fully grown. They suffer from rickets, impetigo, adenoids, rheumatism, colds and various forms of malnutrition. The cases of underfeeding are rare, but all of them live on a diet of cheap sweets and cakes, bread and margarine, fish and chips and tinned foods. The facilities of cooking are poor and the mothers are ignorant of good simple feeding; many of them are the wage-earners of the family, and the small child is fed by the elder sister. The majority of the parents, especially the younger ones, make continual efforts to keep the children clean and tidy and have some conception of their duty towards them. In spite of this, cuts and sores are always septic, hair is often verminous, and small bodies are flea-bitten."

Miss Boyce also says:-

"Some children almost fed themselves on six days of the week. They had a free breakfast at a charitable institution; with a few coppers they bought their own dinner, (This usually consisted of chips, cakes or a penny pie) coerced their parents into giving them another copper to buy cakes for tea, and finished up with bread and margarine. They also brought a halfpenny to school to buy their daily milk, and sometimes another for chocolate."

Clearly these children, even if their hunger is being satisfied, are not being fed as the B.M.A. would recommend. On the other hand, Professor Burt says that he considers that few children have insufficient food since the institution of free milk and meals, but that they often have the wrong sort of food at home. Whether there is disagreement between Miss Boyce and Professor Burt depends on the precise meaning attached to the word "insufficient". If it means insufficient in

quantity they agree; if it means insufficient in food values they differ. I deal elsewhere with the correlations which Professor Burt finds between success in school, poverty and malnutrition and with the question of how far the provision of free milk and meals is able to counteract the effect of wrong feeding and insufficient feeding in the home.

In considering in the light of statistics the number of children who are fed too badly to attain a satisfactory standard of health and physical development I will begin by quoting the findings of Orr, for his classic on the subject "Food, Health and Income" has not been contradicted except in the point which does not concern us at the moment, the amount spent on food by people belonging to the highest income groups.

Working from the 1931 Census publications Orr calculated the distribution of incomes to be as follows:-

	No. of Families	No. of Persons	Proportion %
Up to 10s. per head per week.	701,000	2,935,000	7.7
10s. to 15s.	1,649,000	6,826,000	18.0
15s. to 20s.	2,026,000	8,356,000	21.9
Over 20s.	5,854,000	19,923,000	52.4
Total	10,230,000	38,040,000	100.0

This analysis did not go beyond 20s. per head per week, but income tax statistics indicate that roughly ten per cent. of the incomes in the country are over £250. a year, and it was on the basis of these figures, allowing a ratio of 1.1 dependents to earners that he calculated the proportion of incomes in the two higher groups. As

we are dealing with the underfeeding caused by poverty we need not trouble with the sub-divisions of the incomes of more than 20s. per head per week. What does concern us very nearly is the number of dependent children in each group, and particularly in the lower groups. Orr found the proportion of children under fourteen to be as follows:-

	Proportion of Dependent Children.	Income per Head per Week	Expenditure on food per week.
Group 1	49%	10s.	4s.
Group 2	35%	10s. to 15s.	6s.
Group 3	25%	15s. to 20s.	8s.
Group 4	14%	20s. to 30s.	10s.
Group 5	12½%	30s. to 45s.	12s.
Group 6	12½%	Over 45s.	14s.

From this we can estimate the number of children in Group 1, who probably suffer from serious malnutrition, to be 1,438,150, and a further number who are probably not fed well enough to reach their optimum development, the children in Group two, to be 2,389,100.

There is no escaping the serious implications of these figures, but we must bear in mind when considering them that although six shillings a week is not enough to feed an adult satisfactorily it is enough to feed a child under ten or eleven, provided the child gets milk from another source to supplement its diet, and this many children do. Despite this caution I am inclined to accept without reserve all the children in Groups one and two as suffering from some degree of malnutrition.

Orr says that the million and a half children in Group 1 constitute between twenty and twenty-five per cent. of the children in the country; a few of these children will be in

a state of under-nutrition, all of them presumably in a state of mal-nutrition. The further thirty three per cent. who fall within group 2 will be suffering from some degree, in many cases only a slight degree, of malnutrition. On this count more than half the children in Great Britain are not receiving the food that they need if they are to realise to the full their genetic possibilities. In one sense this result is neither shocking nor surprising; it is unlikely that in the history of civilised mankind it has ever been possible for more than a few individuals to be so fortunate in their environment that they were able to reach their optimum physical development, but that is no reason why we should acquiesce in the facts as they exist to-day.

How far are the findings of Orr supported by material from other sources?

Let us begin with the official figures supplied by the Board of Education in the "Health of the School-child" 1938. They give a different answer. In the routine examinations of 1938 only 10.8 of the children were found to be slightly sub-normal in nutritional condition, and 0.5 to be bad. As I have already mentioned the conflict of standards between what could be and what is, I will not comment further on these figures, except to remark that the Chief Medical Officer himself writes that the tables for some districts seem to err on the optimistic side. He also comments on the tendency to adopt a more exacting standard each year, so that more children are classified as having various complaints; undoubtedly in the matter of the health of the children as in most other directions the Board pushes steadily for improvement, and the discrepancy between its figures and Orr's is due to the fact that the Board is dealing with a practical problem which it states only in so far as it can solve it, whereas Orr is stating the academic truth, as he sees it. It is

notable that the report states that the percentage of children classified as undernourished is always higher in an inspection specifically concerned with nutrition than at the ordinary examinations; this is a natural result of the difficulty of diagnosing the milder forms of malnutrition, and no doubt this difficulty is largely responsible for the small number of children classified as sub-normal.

The difference between the Board's return of sub-normal children for the whole of England and Wales and for fifteen distressed areas of Tyneside, Northern England, and South Wales, show the correlation between poverty and nutrition, and suggest that the first is the cause of the second; the average percentages for the distressed areas are: Category C. 16.8, Category D. 1 - 16. The figures for the whole country are respectively 10.8 and 0.5, a difference which is statistically significant. Dr. Buchanan of Hepburn, commenting on the increases shown by the C. and D. percentages in his returns is quoted in the "Health of the School-child" as saying:-

"These increases are, taken by themselves, of little significance, since the assessment of nutrition in children is liable to variation due to the human element. But taken in conjunction with the marked increase in anaemia and bronchitis shown during the year, these figures would seem to indicate that there has been a real and serious deterioration in the nutrition of the community. All the children examined have passed through the recent years of trade depression common to the whole country and especially marked on Tyneside, and it is during these years of growth that adequate nutrition is vitally important."

Against this depressing opinion we may set the following quotation from "Nature" October 1939:-

"In the last twenty-five years there has been a

remarkable improvement in the national dietary. Consumption of 'Protective' foods has increased by nearly fifty per cent; there has been an accompanying improvement in national health and physique; infant mortality rate has fallen by nearly fifty per cent; the gross forms of deficiency diseases, such as rickets, are rapidly disappearing; deaths from tuberculosis, resistance to which is increased by a good diet, has been reduced by nearly fifty per cent; children leaving school to-day are two to three inches taller than their parents at the same age."

The conflict between these two statements is more apparent than real. One need only study the Report of the Royal Commission on Physical Deterioration of 1903 to realise how great an improvement the last forty years have brought to the health and living conditions of Great Britain. But, as the "Times" of August 9th 1939 says, "Schools have more to do than merely train the mind and body of the child; they have to eradicate the results of last century's hectic industrialism. They are not only educating; they are also performing a great eugenic function and rectifying some of the great social injustices of the past." What has been done slowly with difficulty and effort can quickly and easily be done. Things have been very bad in the past, and the improvement of recent years does not necessarily mean that they are yet good. Rising prices, unemployment, trade depression, anything which leads to a slight deterioration in the standard of living will cause a serious increase in physical inefficiency and human unhappiness.

The social surveys which have been published support the theory that a very large proportion of the children of England and Wales cannot be supplied by their parents with the necessities of life. The most thorough of the

social surveys is probably that of Mersey-side prepared by Jones and Carr-Saunders in 1931,⁽⁵³⁾ Jones and Carr-Saunders by careful costing, taking into consideration the family size and necessary minimum expenditure of the households they sampled, arrived at a "Poverty Line" which they called a hundred. They were strict in their requirements and made very little allowances for unforeseen items of personal expenditure which came under no obvious heading. The very poor cannot often indulge in spending of this kind, but every human being must occasionally do so, and in the case of the poor the money is usually taken from the already restricted good allowance. In the Merseyside Survey a smaller amount was reckoned to be necessary for food than has been allowed in any other important survey, not excluding that of Seebohm Rowntree. Those who fell below the poverty line of this survey were poor indeed.

I reproduce on the next page a table showing the income and expenditure of 332 working class households that they examined. This table conveys the implications of poverty to the imagination more forcibly than pages of descriptive writing could do. We can see from it that even in theory, and in such matters theory is usually easier than practice, the very poor cannot keep their expenses within the limits of their income; one suspects that a perpetual and harassing burden of small debts lies behind the discrepancy of the figures and that one of the charges for which no allowance has been made is the percentage taken each week from some households by the petty back street money-lender.

We find that other surveys tell very much the same tale, and their agreement enables us to accept the figure of 25 to 30 per cent. of English children living below the poverty line and below the B.M.A. B diet.

MEDIAN AND QUINTILES OF GROSS EXPENDITURE AND INCOMES OF FAMILIES GROUPED
IN RELATION TO THE POVERTY LINE

Group	Income in Relation to Poverty Line	No. of Families Sampled	Median & Quintiles of Income and Expenditure per week.				
			Q.1 s. d. Inc. 26. 8. Exp. 27. 9.	Q.2 s. d. 32. 0. 33. 7.	Med. s. d. 33. 0. 35. 11.	Q.3 s. d. 35. 0. 39. 0½.	Q.4 s. d. 40. 0. 44. 11.
1.	0 - 79	62	Inc. 30. 0. Exp. 29. 4.	36. 0 37. 0.	38. 2. 39. 6½	40. 0. 41. 10.	45. 0. 47. 3
2.	80 - 99	64	Inc. 34. 0. Exp. 34. 6.	40. 0. 39. 9½	44. 0. 42. 10.	49. 0. 47. 5	57. 4 55. 8
3.	100 - 149	106	Inc. 51. 4 Exp. 47. 8	62. 4. 56. 8½	70. 6 60. 2½	77. 6. 67. 9	100. 0. 89. 1½
4.	150 & over	100					

(From Jones and Carr-Saunders "A Social Survey of Merseyside")

PROPORTION OF CHILDREN LIVING BELOW POVERTY LINE

Author	Title of Work	Percentage of Families or Population below Poverty Line	Percentage of Children below poverty line.
Inman	"Poverty and Housing Conditions in a Manchester Ward 1934.	9 per cent. families	28 per cent.
Sheffield School Medical Officer	Survey 1933	17.1 per cent. population	26.9 per cent.
Ford	"Work and Wealth in Modern Port (Southampton)1931	21 per cent. families	30.0 per cent.
Jones and Carr-Saunders	Merseyside Survey 1931	17.3 per cent. families	24.5 per cent.
John Orr	"Food, Health and Income."		20 to 25 per cent.

The poverty line of the surveys allows about four shillings per head per week for food, a diet rather below the B.M.A. standard B. diet, which is suitable for "those leading inactive lives." We must add another 33 per cent. to the number of children who are insufficiently fed if we include his next income group which spends six shillings, and which, if we allow for the change in prices, brings it to the neighbourhood of the standard A. diet. I am prepared to claim that for children the A diet is the only satisfactory minimum; children do not come into the category of "those leading inactive lives."

Towns such as Liverpool, Manchester and Southampton are notorious for their poverty and their slums; ~~an~~ we must not assume that the rest of the country carries an equally heavy burden. We are probably on safer grounds if we examine Seebohm Rowntree's work, (95) which is based upon conditions prevailing in the town of York.

Rowntree is held to have been severe in the matter of food in calculating his minimum expenditure. He considers that physical efficiency can be maintained for an adult male at a cost which was 5s.5d. in 1936, and which would be about 6s. 3¼d. in 1938, as the cost of living had risen five per cent in the interval. He reckons on housewives baking their own bread, a thing that few women now do, and on the families using only skimmed ~~an~~ or condensed milk, because, he says, the equivalent of milk fat can be bought more cheaply in other ways. But skimmed milk is not easy to ~~buy~~ buy now, and in many districts ~~is~~ unprocurable, so that in fact it is not possible to live exactly as he suggests. On the other hand he allows fairly for the personal expenditure of the household an amount which is small but which does not reduce it to the lowest of existence levels. He allows for the personal expenditure of a family of five the sum of nine

shillings, which he allots as follows:-	s.	d.
Unemployment and health Insurance.....	1	7
Sick and Burial Clubs	1	0
Trade Union Sub.....	0.	<u>6</u>
Travelling to and from work	1	0
Stamps and writing paper for the family..	0	6
Daily newspaper.....	0	7
Wireless.....	0	6
All else, beer, tobacco, presents, holidays	<u>3</u>	<u>4</u>
Total		<u>9 - 0</u>

For the needs of five people I do not think this is excessive although it is far beyond the amount allowed in calculating the "Poverty Line" of the surveys I have already quoted. He found it difficult to allow for rent because of the wide differences in different areas, and finally he took 9s. 6d. as being an average for the three-bedroomed house which he maintained was necessary if a family had three children who were not all of the same sex.

He finally arrived at the sum of 53s. a week as the minimum upon which a man, wife and three children could live a decent life in a town, and 41s. as the sum which was necessary for human life in the country. Five per cent. must be added to this sum to obtain its equivalent for 1938. He then proceeded to compute, by sampling amongst the population of York, the proportion of children who would according to this standard be inadequately provided for during a greater or smaller number of years. For this purpose he examined all the families in the town of York of which the 1931 Census returns gave the age of the mother as between forty and forty-five years old. This age condition was imposed to ensure that the families should be completed; it is true that children are occasionally born to women over forty, but by studying the spacing of families he came to the

conclusion that 98 per cent. of the 2,875 families who came within his net were complete. He argues that York is a fair sample for the whole of England, instancing to support this opinion that York has the average death rate, and the average number of dependents for each household (1.1).

Mr. Rowntree gives a table which I reproduce below, showing the maximum number of children in each household simultaneously dependent on their parents.

Max. No. of Simultaneous Dependents.	No. of Families	Percentage of Total Families
None	509	17.7
1	722	25.1
2	703	24.5
3	422	14.7
4	261	9.07
5	160	5.5
6	77	2.7
7	17	0.6
8	3	0.1
9	1	0.03
	2,875	100.0

From this we can see that eighteen per cent. of the families are inadequately provided for during at least one year. But the percentage of children who suffer want will be very much higher than the proportion of families. Rowntree found that of the 5,852 children which his 2,875 families contained 3,724 (63.6 per cent.) belonged to families having three or more dependent children, and that of these 58.8 per cent. belonged to families having three or more children dependent for five years or longer. He found that 2,458 (42.0 per cent. of the 5,852) belonged to families having four or more dependent children, and that of these 34.5 per cent. belong to families having four or more children dependent for five years or longer.

Rowntree's results show clearly that poverty falls much more heavily on children than on the adult section of the population, for we learn from him that even if all workers received the minimum wage which he estimates to be necessary if the population is to maintain its quality, replace itself and live by civilised standards, forty-two per cent. of the children in the country would be undernourished, and thirty-four and a half per cent would be undernourished for a long period. Not all workers do receive this minimum wage. Many members of the most prolific class, that of the unskilled labourers, fall below it. Children suffer particularly from poverty both in degree and in numbers. In degree because they must satisfy their growth impulses and are therefore most vulnerable to its attacks. In number because they are themselves a cause of poverty and the more numerous the children in a family the less the money per unit that can be spent on food. The situation is aggravated by the higher birthrate of the poorer classes. According to the 1931 Census publications the birthrate of the poorest fifth of the population is nearly 40 per cent. higher than it is for the wealthiest fifth. The differential infant mortality rate is not enough to counteract the more rapid reproduction of the poor.

The most detailed and convincing work on the nutrition of children in the elementary schools is that done by Bockington and published in "The Journal of Hygiene," January and September 1938⁽⁷⁾, "Public Health", April and September 1939^(6, 8), and in the Annual Report of the combined North Eastern district of Sussex 1937. His work is especially valuable because it unites almost all the factors which have to be considered, income, amount actually spent on food, the food values actually bought with the money, the number of children whom he found to suffer from general malnutrition and the number who suffered from protein

deficiency. The only relevant subject which he appears to omit is the calculation of mineral and vitamin deficiency. As an individual investigator he was only able to get this mass of information from a relatively small number of families, and therefore his work is not absolutely conclusive; it is to be hoped that some educational or medical authority with the necessary resources will carry out similar inquiries on a larger scale.

Bockington examined ninety-seven families chosen at random from those who had children at an elementary school in Horsham, Sussex. The material is satisfactory from our point of view, because the township is a prosperous one, there is little unemployment, and the wages of the families examined reached the high average of £3.12. 9d. therefore it is unlikely that his results exaggerate the results which would be obtained if a similar inquiry could be made to cover the whole country. All the families were visited personally, the number, ages and sex of the members of each household was found out, rent, expenditure on food (checked by reference to the weekly bills) amounts of food obtained free, or at less than market price, and personal, general expenditure for the household were ascertained. For the last item Bockington took a sum which works out at much the same as that allowed by Rowntree, although he worked it out on a unit, instead of a family, basis.

He found that eight shillings a unit was the cost of the B.M.A. diet for a Horsham housewife in 1937-1938, but that the housewife was not satisfied that she had spent enough on food until she had spent nearly eleven shillings a unit, for when she was able to spend this amount a rise in income did not lead to much more being spent on food; up to this point expenditure on food answers sensitively to every change in income.

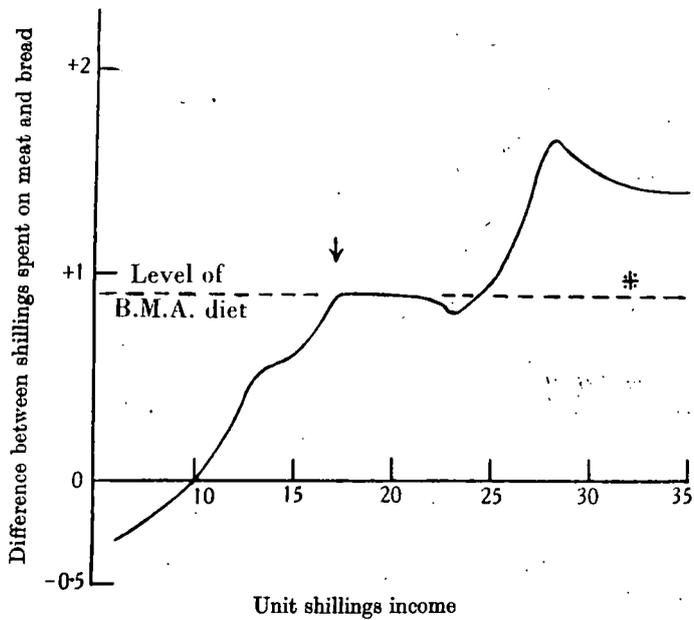
I reproduce Bockington's graph which shows the variations in unit incomes from seven shillings to thirty

shillings, and the corresponding amounts spent on food, varying from three shillings to eleven shillings a unit, and also one showing the amounts spent on different kinds of food at different income levels. This leads us to the important question of balance. It is clear that first class proteins are abandoned in favour of cheaper but less valuable foods directly the income shrinks, and the energy foods which are cheaper and give an immediate sense of satisfaction but which do not fulfil a child's physiological needs are bought instead. Roll (94) has pointed out that in times of dearth when the price of bread rises the consumption of bread increases because bread remains the cheapest form of food, even when it reaches a famine price. Bread is always the cheapest and least valuable of foodstuffs, and times of hardship drive people to eating a larger proportion of it; the "staff of life" could be more aptly described as a crutch.

A serious lack of balance was marked in the households which had a unit income of less than eleven shillings. It is this vital question of balance which is probably the cause of the poor nutrition of so many children. It is not enough to maintain the B.M.A. standard in quantity if children do not receive enough protein to satisfy their growth impulses and to protect them from the diseases which hinder development. Five shillings a week is the ideal amount to spend per unit on proteins, two shillings is the least upon which vitality can be maintained; we find that 5s.6d. is spent on them by families with over thirty shillings unit income, whereas less than one shilling a week is spent on them by the poorest families.

The table on page 132 shows so clearly the effect of family size on food expenditure that further comment on it is superfluous. The child of the poorer classes is heavily handicapped if it is a member of a large family, and it is

	Unit income group										
	6-10	10-12	12-14	14-16	16-18	18-20	20-22	22-24	24-26	26-30	30+
Difference in shillings per unit spent on bread and meat	-0.3	0.098	0.5	0.6	0.9	0.9	0.88	0.8	0.95	1.66	1.4



Graph 2. Average difference between expenditure on bread and meat in relation to unit income.

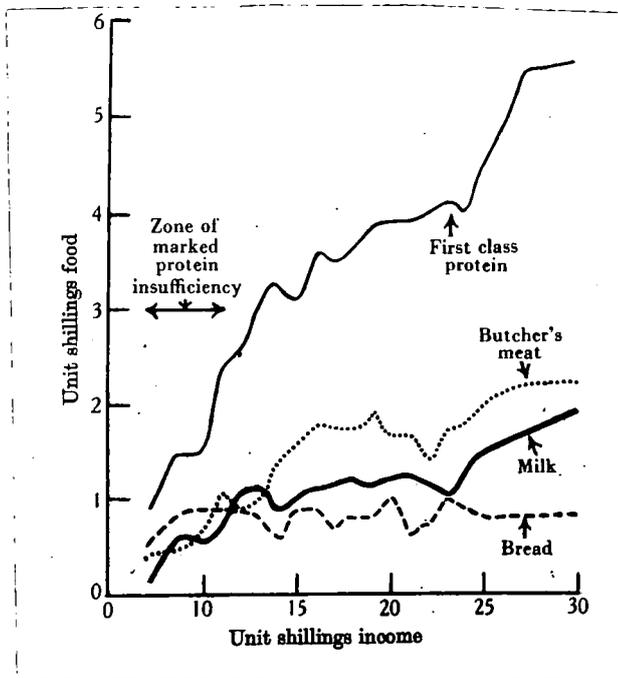


Fig III

Graphs made by Dr. Bockington to show deficiencies and disturbed balance of diet at the lower income groups.

the children of school age who suffer most, because with many of them during their school years the home is full of younger brothers and sisters, and the older children have not yet begun to earn. These years are the time when an able child must win its initial success if it is to fight its way to skilled or professional work in the future. School life makes heavy demands on a child who takes it seriously. There is some strain in winning a free place to a secondary school, and when they have won them the work they have to do is arduous and largely competitive.

Bockington divided his families into three groups:-

1. "Entrant" those in which no child was more than seven years old.
2. "Middle" Those in which the eldest child was over seven, but no child was yet earning more than 10 shillings.
3. "Leaving" Those in which one or more children were earning more than ten shillings a week.

He found that the middle group, containing the highest proportion of school children, received less in total food and protein than the others to the following extent:-

	No. of Families	Average provision per family in unit shillings per week.	
		Food	Protein
Entrant	19	9.5	4.4
Middle	29	6.5	3.2
Leaving	42	7.8	3.5

This point is of particular interest to the educationalist, but of course the provision of milk and meals to children who are classified as necessitous obviates the disadvantage of the worst cases; the problem now is not to remove the more glaring cases of malnutrition,

the social services already do this, but to prevent the wastage of efficiency amongst the large numbers who might, given better opportunities achieve more and produce more. It is relevant at this point to state that neither Bockington nor Rowntree consider any child over fourteen as "dependent". A child who climbs the "educational ladder", and reaches a secondary school is an additional burden to his family; he increases the number of years during which the family would be classed as "middle" which means poorer nourishment both for him and for his brothers and sisters.

Accepting the B.M.A. cost units, Bockington found that Horsham families spent the following amounts on foods

Family in cost units	Income Groups in Shillings per Week						200
	40	50	60	80	100	150	
2 - 2.5	-	7.4	10.4	11.1	-	-	-
2.5 - 3	4.9	8.33	8.9	11.05	-	-	-
3 - 3.5	4.0	6.05	8.3	7.65	12.0		
3.5 - 4	-	5.05	6.8	8.3	-	8.3	
4. - 4.5	3.2	4.9	6.3	7.0	8.4	9.5	10.5
4.5 - 5	3.0	4.4	6.8	9.9	8.9	8.95	-
5.5 - 6	-	-	4.7	7.0	-	11.0	-
6. - 6.5	-	-	-	-	7.0	6.9	7.6
6.5 - 7	-	-	-	5.55	7.5	7.2	-

Bockington's conclusion is that of the urban families that he examined:-

- | | |
|--|--|
| 51.4 % of the children fall short of the B.M.A. standard A diet for total food expenditure | 45.4% of the children fall short of the B.M.A. standard A diet for Class 1 protein |
| 20.2 % of the children fall short of the B.M.A. standard B diet for total food expenditure | 21.3% of the children fall short of the B.M.A. standard B diet for class 1 protein |

Bockington also examined 80 rural families selected at random from 4 country schools. The range of income in

the families of which the eldest children were not yet earning was 32/- to 55/-. 54 families came in the category of having only one wage-earner, and were examined in three groups.

- (1) Those earning from 32/- to 35/- (7 families)
- (2) " " " 35/- to 45/- (33 ")
- (3) " " " 45/- to 55/- (14 ")

Rent was discovered for each family, and access to free supplies of food, such as rabbits, was taken into account, so that the conditions of his rural inquiry were similar to those of his Horsham investigation.

One occasionally hears surprised comment to the effect that health in rural areas is worse than it is in towns; the fact ceases to be surprising in view of the low wages paid to agricultural workers, and the tables which I give below showing the expenditure on food of these 54 families.

Shillings spent on food per unit in income groups

Family size in cost units	32/- to 35/-	35/- to 45/-	45/- to 55/-
2 to 2.5	7.1	8.15	9.4
2.5 to 3	-	7.7	10.4
3 to 3.5	6.15	7.25	9.9
3.5 to 4	5.7	6.04	7.8
4 to 4.5	-	5.66	6.8
4.5 to 5	4.35	4.74	-
5 to 5.5	-	4.8	6.3
5.5 to 6	-	3.88	5.1
6 to 6.5	-	3.3	-

Of the 107 children in these families, the number who were substandard is as follows:-

	32/- to 35/-	35/- to 45/-	45/- to 55/-
Percentage below standard A	91.7	82.6	57.7
Percentage below standard B	75.0	58.0	27.0

In the families with more than two children and in income of less than 40/- a week, 100 per cent. fall below standard B. For the whole 80 families (including families in the higher income range), 72.2 per cent. of the children fall below standard A, and 40.6 per cent. fall below standard B; and he finds, by a detailed examination of their diets, that 32.7 per cent. of the children in rural schools subsist on amounts suggesting protein starvation.

This result of 51 per cent. urban children and 72 per cent. rural children falling below the standard diet is higher than Orr's percentage of 53 for the whole country, but exact agreement cannot be expected when we are dealing with conditions which cannot be exactly measured. Also we must remember that Orr's figures were for all the children in the country, whereas Bockington is dealing with elementary school population; this will not, however make a great deal of difference as only 37.5 per cent. of the children of elementary school age in England and Wales attend schools which the Board of Education classifies as "Private and Preparatory".

Rowntree's conclusions are calculated on an entirely different basis and cannot therefore be compared with those of Orr or Bockington, but it is worth quoting one of his final statements:-

"If we were to base minimum wages on the human needs of families with only two children, 63.6 per cent. of the children of fathers receiving the bare minimum wage would for a shorter or longer period be inadequately provided for."

The reason why these three results are different from, and higher than, the results of the social surveys is that the social surveys take the standard B diet as being sufficient, whereas authorities who are particularly concerned with the welfare of children will not accept anything less than the standard A diet as being good enough. We have seen that Orr's estimate of the number of children in the lowest income group, whose standard of living is that of

the B diet, approximates closely to that of the social surveys.

Crawford (25) makes no special estimate of the number of children who are poorly fed, but he considers that the following numbers of people live below the standard B diet for the various essential food constituents:-

Calories	15,000,000
Protein	18,000,000
Calcium	25,000,000
Phosphorous	33,000,000
Iron	33,000,000
Vitamin A	37,000,000
Vitamin B	24,000,000
Vitamin C	21,000,000

He says that 51.7 of the population are living below the rather more generous diet recommended by the League of Nations Union; this would include far more than 51.7 of the children. Crawford concludes that:-

"Some 8,000,000 people are living in families whose food expenditure is below that required to purchase the foodstuffs prescribed by the B.M.A. diet. But an additional twelve to twenty-two millions are spending weekly a sum sufficient to purchase those foodstuffs but are not obtaining the nutritive benefits which the B.M.A diet provides."

The modern tendency is to vindicate the housewife in the matter. McGonigle, Cathcart and Murray, and Bockington all think that the housewife buys with an instinctively correct bias in food values. Lord Horder, speaking in the House of Lords on November 14, 1936, said "Look after the availability of food, and nutrition will look after itself." But I am inclined to agree with Crawford, and I think it is probable that inefficient buying and cooking are most common in the slum homes of the very poor, where the general depression of existence makes doorsteps of bread and margarine, varied by chips and an occasional

cheap pastry, the monotonous and impoverishing, but cheap and labour-saving diet. The wealthier housewife, who has a liking for such foods as tinned salmon, is equally guilty of a crime against her children, but her children, who will be better provided with milk and other important foodstuffs, will have a better chance of surviving successfully her laziness and inefficiency.

It would perhaps be advisable to check the figures for the number of children who are suffering from malnutrition by material from another source. J. Kuczynski in Hunger and Work⁽⁵⁵⁾ published the results of an inquiry into the number of people in Great Britain who live below Rowntree's minimum. He examined sixteen of the industries, including mining, textiles, transport, metal engineering, food and clothing trades, agriculture and public utility services, using the figures supplied by the Ministry of Labour Gazette and by the Trades Unions records. He found that the number of adult male workers in Great Britain who earn less than the Rowntree minimum in 1938 was 3,000,000. From this we can assume that there are more than three million children living in homes which cannot provide for them on the Rowntree standard, for one dependent child for each adult male is a low number to allow for the poorer classes. Kuczynski says that of the adult unemployed males fifteen per cent. have three or more dependent children. If we reckon the average size of these families as four we have sixty dependent children for every hundred men. Forty children for the smaller families of those of the remaining seventy five men who are married is a moderate number to allow. We can therefore count, according to Kuczynski, 4,000,000 children as living below the Rowntree minimum 3,000,000 for the dependents of the workers whose wages are below the minimum, and 1,000,000 dependents of the unemployed. This figure includes Scotland, and works at about 40 per cent.; slightly lower than that of Orr and markedly lower than

Bockington's. For the sake of being on the conservative side I prefer to take Kuczynski's result as the correct one, with the caution that it errs, if it errs, on the side of minimising rather than exaggerating the extent of the problem; the sources of his information are quite unquestionable, the arithmetic involved is simple, and his result of forty per cent is verified by the findings of Colin Clark.

Colin Clark (21) says that the total adult male population of Great Britain which receive less than the Rowntree minimum in 1937 was 4,222,000. This amounts to about 40 per cent. of the adult male operative population, and if there is one dependent child for each adult male, implies that 40 per cent. of the children are underfed.

It is significant that there is substantial agreement as to the proportion of children who are denied a satisfactory standard of living, and we must accept about 40 per cent. as representing the truth. In accepting this I am compromising between the ideal and the actual. The actual standard, as represented by the Board of Education's assessment counts as satisfactory the growth and physical development of all but 11.1 per cent of the children of England and Wales. The ideal would demand something far better than the Rowntree minimum. Kuczynski is emphatic that the Rowntree minimum is too low and does not allow for the real needs, especially the needs in food, of the wage earners and their families. Orr and Bockington maintain that more than Rowntree allowed must be spent on food if children are to satisfy their growing impulses and resist disease. In the next section, in which I deal with the physical effects of malnutrition, and the improvement which follows upon improved nourishment, I hope to show that a few extra shillings spent each week upon food enables most children to eliminate the difference between the "excellent" and

the "normal" is nutritional condition.

The Effect of the Provision of Free Milk and Meals in Counteracting Malnutrition.

Before I proceed to deal with the effects of malnutrition it is necessary to consider how far the provision of free milk and meals lessens its extent. The calculations with which I arrived at the conclusion that between forty and fifty per cent of the children are suffering to a greater or less extent from malnutrition were most of them based on the assumption that the household income must supply all the material needs of the children. Bockington made special reductions for sources of free food, but so far as I know no one else did so.

For the facts about the help of this kind that is provided I quote from the "Health of the School Child" 1938:-

"On 31st March 1939, the milk in schools scheme was in operation in 86.9 of all the departments in public elementary schools. The schools not operating the scheme are mainly small rural schools, and although they constitute 13.1 per cent. of the total number of departments they contain less than 5 per cent. of the total number of public elementary school children.

"By July 1939, 278 authorities were providing free meals or milk under Section 84, and of this number, 154 were providing both solid meals and milk; three, solid meals only; and 121, milk only.... The numbers of public elementary school children in receipt of free meals or milk have continued to increase. 687, 855 were thus fed in 1938-9 (compared with 614,806 in 1937-8, and 535,300 in 1936-7), and of these 635,174 children received free milk and 176,767 free solid meals. Of the last mentioned some 124,086 received both free meals and free milk. Expressed as a percentage of the total average attendance of children in England and Wales 11.5 received free milk

only; and 2.8 per cent. both free meals and free milk.

"These figures show that progress has been maintained but it is still a fact that the provision made in many areas falls far short of that recommended in the Board's Circular 1443, issued in December 1935. In the report for 1936 it was stated that fully to carry out the policy of the Board laid down in that Circular, there are three essentials:- accurate ascertainment, efficient provision, and a proper income scale."

Circular 1443 lays down the important principle that the supplementary nourishment given to the children should be enough to enable them to take full advantage of the education provided for them. This is no doubt a sound principle, and one that any educationalist would applaud, but if it were applied in the light of recent research into the relationship between physical condition and mental achievement Authorities in the less fortunate districts might find that by the time they had fed the children they had no money left with which to pay for schools and teachers. No doubt a many Local Authorities do their best in the light of common standards and the funds at their disposal, but others are blind to their responsibilities in this matter, so that luck, in this as in other ways, affects the life of the child of poor parents in spheres in which it cannot touch the life of the middle class child.

The element of luck is particularly noticeable in this connection. The percentage of 11.5 who are receiving free milk is .4 per cent. more than the percentage who are classified by the Board as being sub-standard. But even assuming a uniform standard of assessment the inequality of the methods and scales of the help given by Local Authorities means that some children are much more generously assisted than others. In some districts no doubt a casual standard of medical examination is cancelled by the liberality with which free milk and free meals are given; in others there is

a coincidence of medical officers who pass a high proportion of cases of malnutrition and of educational Authorities who impose a stringent and out-of-date income scale before they will grant help; in others the combination of exacting medical officers and generous authorities will do much to counteract the effects of poverty in their areas. That the average works out justly does not necessarily mean that justice is secured for the individual.

It is clear that the Board does its utmost to persuade the local authorities to avail themselves of the permissive legislation which enables them to provide for necessitous children, and that the Board is anxious that this help should be given with the utmost generosity. It is, at the time I am writing, carrying out a survey of the measures taken by different authorities to deal with malnutrition, and it is urging that milk should be given in larger quantities than the usual third of a pint; the recently published reports of the Milk Nutrition Committee suggests that this increase in the quantity of milk given be the next reform undertaken by enterprising authorities who wish to improve the physique and health of the children under their care. The Board maintains that for finding out which children need help the routine medical examination is not enough, and that they should be supplemented by special nutritional examinations. It seems ungenerous to criticise the Board's standard of assessment when it is so willing to admit the inadequacy of the present method of discovering the children who are poorly nourished, and when each year, up to the outbreak of the war, it has improved the amount and quality of the help that was given.

The Board holds that recommendations for free meals should be received from the teachers as well as from the medical and nursing staff. This is because the medical and nursing staff are not always present and it is wrong that

children should spend hungry days in school waiting until they are formally classified as belonging to category C or D. The Board especially deplores the method of supplying only the children whose parents apply for help. Some parents are ignorant of the existence of the free milk and meals schemes; some think that there is disgrace connected with accepting help of this kind, because it betrays their poverty to their neighbours and admits their inability to provide for their families; many people are sensitive on points like this, and it is not right that their children should suffer for their feelings. Some parents do not realise that their children need the extra nourishment, and if they seem puny and ailing they accept this affliction as being due to unavoidable delicacy, an act of God which must be accepted with resignation.

Another abuse in ascertainment is the imposition of income scales which vary from district to district, and which too often fail to vary with the cost-of-living index figures. No one suggests that children should be fed free if their parents can afford to pay for their food, and an enquiry into the ability of the home to pay is just, but that a child living on one side of a boundary should be disqualified for free milk whereas a wealthier child who lives perhaps only a hundred yards away but under a different authority should be given it is unjust, and painfully unjust when the families concerned know one another and one another's circumstances, as sometimes happens.

It would perhaps be as well to give some examples to show the variations in the provision made in various districts.

The London child does well. If he is classed as necessitous he is given every school-day a dinner containing a heat value of 750 calories and 25 grams of protein; on the recommendation of the doctor he will receive as much as two bottles each day. Further, there are in London

"Nutrition-Centres" to which children who are suffering from mal-nutrition are sent so that their individual needs and home circumstances can be studied, and adverse conditions as far as possible rectified. The "Nutritional Centre" is an excellent innovation, but in one respect the L.C.C. is not equally enlightened. Free meals are given as part of relief if the parents are on the rates, and money is deducted on account of them. There is hardship in this when one remembers how small the P.A.C. allowance for a child is, in London (in 1938) it was four shillings for the first child and three shillings for each subsequent child, if all the children were under ten; five shillings for the eldest child and four shillings for each subsequent child if the children were over ten. The allowance for a married couple was eighteen shillings, so that the unit income was that of Orr's lowest group. This means that children do not like to take the free meals if their parents are on the P.A.C. for although the deduction is small, and the meal better than they could buy with the money at home, they feel that the money is needed in the common pool of the household.

Other examples of good authorities are Bradford, which provides a meal for which the children pay sums varying from 3d to $\frac{1}{2}$ d. according to their means. Two thousand, out of the three thousand who take the dinner, pay less than the full amount. Willesden provides meals seven days a week throughout the year; it is to be hoped that other areas will copy this, for although the children need the extra nourishment less when they are idling in the streets or at home than when they are at school, the children who qualify for free meals need them too badly not to need them every day. In Hull the head-teacher can order free meals for children who appear to need them, without waiting for a medical order or application by the parents. These are examples of good authorities, but there are others who supply meals only to children whose parents ask for them, or who supply them only when they are ordered by the doctor at a medical examination, and in these cases serious damage may be done before the child sees the doctor and is diagnosed; and there are authorities which apply an income test of a standard which has not been altered for many years.

It is becoming inexcusable for authorities to continue in a routine groove in their nutritional policy. Experiments are being carried out by enterprising Medical Officers which receive publicity in government publications, and in such journals as "Public Health" and the "Journal of Hygiene". These enquiries are mostly directed towards finding out what is the most useful form which the extra food can take; in Glossop, Ipswich, Pontypridd, the Isle of Ely, Cambridgeshire and Cumberland, children have been given extra food which includes cheese, butter, wholemeal bread, eggs, vegetables and fruit, and the L.C.C. has tried the famous Oslo breakfast in one of its schools. These experiments raise the question of whether the ordinary meal of a small quantity of meat, sometimes twice cooked, and potatoes and a vegetable which is too often dried peas or beans, is the best possible form which the extra food can take, and the success of the Oslo breakfast suggests that nutrition in England might be very much improved if we changed some of our dietetic habits for those of Scandinavia, by eating more uncooked foods.

It would be helpful to set out the figures of malnutrition and of the extra nourishment provided for necessitous children so that they can be considered in their relationship with one another.

No. of children classified as sub-standard by B.O.E....	11.1%
" " " receiving free milk.....	11.5%
" " " " " meals and milk.....	12.8%
" " " " milk at $\frac{1}{2}$ d a day.....	41.3%
" " " living below the B.M.A. standard A.diet.	40 %
" " " " " " " " B. ?	20 %

Let us first consider the first two items and endeavour to arrive at a conclusion as to whether the second of them is able to nullify the first. If twenty per cent. of the children in England and Wales live below the standard B diet we must assume that rather more than twenty per cent

of the children of school age are included in this number, because Dr. Bockington has shown that "Middle families" those with the eldest child over ten but no child earning more than ten shillings a week, are the ones that suffer most from malnutrition and the ones that have in them the highest proportion of children of school age. There is an overlap of 4% in the figure of those provided with milk over those classified by the Board as sub-standard, and I will assume that this will allow for variations in assessment, and that the half of the twenty per cent. who are worst fed, children who live not on the B standard line, but definitely below it, are the ones to whom the milk is given.

We have calculated the amount of food that is necessary on a money basis; we must now calculate the value of the milk received on a money basis, and see whether it is enough to bring the expenditure on food up to the required level. The cost of the B. diet is six shillings a unit. If we take the average age of the school children as nine, their unit value is 70, and the cost of the diet for them is 4s. 2½d. The cost of the A. diet which represents sufficiency would be for them 5s.7d. If the children living below the B. diet receive 1⅓ pints a week this would equal a monetary help of slightly less than 6d. at the retail price of 3½d. a pint; even if these children live only just below the B. standard (and if the milk goes to those who need it most, it goes to children who are markedly below the B standard) and have 4s. 2d. spent on their food, they now have the equivalent of 4s.8d. spent on their food and are still 11d below the A. standard. We may conclude that whilst the free milk mitigates the evil of malnutrition it is not enough to cure it, even in the most favourable cases of the children who are barely below the B. level.

It is harder to assess the monetary value of the free meals because of the variations in prices and the kinds of meals provided in different districts. Probably the actual cost of the food in most districts in 1938, making, of course

not allowance for overhead expenses, would be about 3d a meal, or 1s.3d. a week for each child. Bought in smaller quantities at home the same amount of food might cost 1s.6d. This would bring them up to the standard of the A. diet provided that they were already having 4s. 1d. spent on their food at home. How many of the 1.2% who receive free meals do have this amount spent on their food there is no means of telling, but it is unlikely that the children who qualify for free meals have as much spent on their food as this, for they are, presumably, the worst fed in the community. I doubt whether in many cases the free meals raise the children to the A standard.

The 2.8 per cent. of the children who receive both milk and meals, and who therefore have their expenditure raised by 1s.11 $\frac{5}{8}$ d. a week, probably reach the A standard of diet. The only factor which is likely to prevent this is the tendency of the housewife to decrease the amount of food given to the school-children because she knows that they are fed at school. In some elementary schools the milk is given directly the children arrive in the morning, and teachers find some children come to school without having had any breakfast because the parents either think that the milk will do, or find that they must make it do. This may be regrettable, but it is neither surprising nor particularly blameworthy; the needs of the younger children have to be met, and the needs of the man must come first, because the only capital of the working class family is the health and physical strength of the bread-winner.

Last we must consider that 41.3 per cent. of the children who buy 1 $\frac{1}{2}$ pints of milk a week for $\frac{1}{2}$ d. a day, rather less than half the ordinary retail price. This represents 6 $\frac{1}{2}$ d extra spent on food. Sixpence halfpenny does not seem a large sum, but it is money in this case well spent, and it is worth taking into account. According

to Orr twenty per cent. of the population lie between the average expenditure of six shillings and eight shillings a week on food. Assuming an even rate of ascent in the expenditure scale, $6\frac{1}{2}d$ would bring 4.3 per cent. of the population up to the standard A diet who would fall below it if they did not spend this extra sum. This result will not be accurate for children, because they are distributed differently from adults in the income groups, and it will minimise the number of children who fail to reach the B.M.A. standard.

On the other hand teachers often comment on the fact that it is the children who need the milk least who tend to be the ones to buy it. This is natural, because it is in the better homes that the advantages of the milk scheme is more generally understood, and also in the better homes where the children are already well fed that the halfpenny a day is not missed. This factor, which cannot be measured, will diminish the percentage of 43 to some extent and would make it wiser to attempt no conclusion as to the exact effect of the cheap milk scheme in diminishing malnutrition.

In conclusion it appears that 2.8 of the children, those who receive both free milk and meals, are raised to the standard of the B.M.A. diet, but that it is unlikely that the provision of either free milk or free meals alone does so. We may also assume that the extra nourishment provided for children in England and Wales, although it may raise some children to an accepted minimum diet, is not sufficient to bring them to the category A which represents "excellent nutritional condition". The provision of free milk and meals and of cheap milk is valuable and must add considerably to the vitality and happiness of many children, but it only touches the fringe of the problem of malnutrition.

EFFECTS OF MALNUTRITION

1. PHYSICAL

Now that I have as nearly as possible assessed the number of children who are unsatisfactorily nourished I will proceed to discuss the effects of malnutrition, and first I will deal with its physical effects. For this subject there exists a wealth of material, and the difficulty is not to find evidence, but to decide which material is best worth incorporating in the present work. Sir John Orr, writing in "Nature" October 1939, puts briefly the sum total of the work of many investigators when he says:-

"We know now the kind of diet needed for health. The British Medical Association standard was calculated to be good enough to prevent obvious clinical signs of malnutrition. . . . But there is a great difference between the mere absence of disease and full, vigorous health, which is provided for in the higher standard of the League of Nations Nutrition Committee. The diet of nearly half the population does not come up to this higher standard. Quality of diet is correlated with income. Dietary and health surveys have shown that as family income falls the diet becomes worse, and ill-health and poor physique become more prevalent. The infant mortality rate is three times as high among the very poor as among the wealthy. The incidence of disease attributable to faulty diet is several times as high and the average adult stature is three to four inches less."

This section of my work may make it appear that I have been unduly timid in accepting the B.M.A. standard as good enough, for the experiments and evidence with which I am about to deal make it clear that all children except those born into the most favoured of the economic classes are unable to reach their optimum physical development, and that the difference in physical standard which exists between

the public-schoolboy and the council school-boy, between the elementary school-child and the boarding school-child of the same age, is a difference which is accounted for chiefly by environmental agencies.

It has been objected that the difference in height and weight which is found between the members of the different socio-economic classes is due to selective breeding. Tallness may be a source of sexual attraction; it may be genetically linked with characteristics which give superiority in more important spheres than that of stature; or it may be the most visible manifestation of a vitality which leads to success. These objections have had their validity destroyed and have been thrown into the category of popular fallacies by recent experiments in nutrition which show that an improved diet for poor children leads to rapid improvement in growth rate and physical development. These experiments are not conclusive as to the extent of the improvement which is possible. We are not in a position to say that the anthropometric records of boys from slum schools would, if the boys were given equal advantages, be the same as those of public school-boys. But neither are we in a position to say that the contrary is true. To arrive at such a conclusion it would be necessary to place large numbers of children of slum parentage in excellent environmental circumstances not only throughout their childhood, but also during their pre-natal life, and no such experiment has yet been carried out. I propose to give an account of the more important findings on the subject of the effects of nutrition as a prelude to reaching a conclusion as to the degree to which children from poor homes are handicapped in their physical and mental equipment by poor nutrition.

Validity of the Height-Weight criterion of nutritional condition

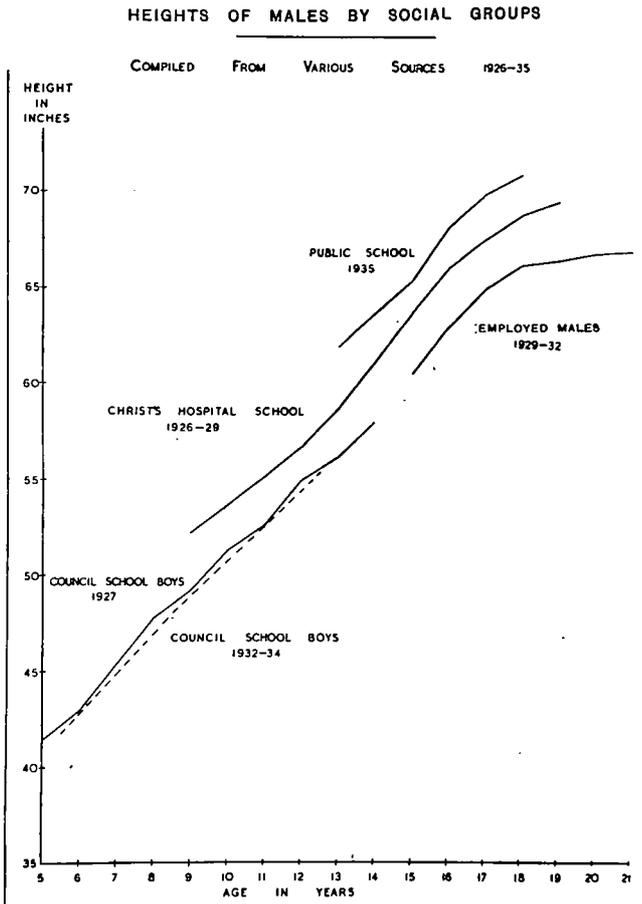
In the experiments which deal with this subject height

and weight together are usually taken as indicating health. These are the measurements which are easiest to obtain, and are, in fact, the only measurements which it is possible to obtain for very large numbers of children. Clearly height and weight would be an unsatisfactory basis for assessing the health of a single individual, but most authorities agree that it is satisfactory when dealing with numbers large enough to eliminate the falsifying influence of individual exceptions, such as the overgrown weed, the unhealthily fat child, the tough child, bred small, and the child who is both tall and fat and who has some ailment such as a weak heart. Burt, Adamson, Orr, and other authorities too numerous to mention, accept height-weight-age as giving a satisfactory indication of health when used comparatively for children of the same race.

Figures giving the incidence of disease, especially of diseases known to be caused primarily or secondarily by poor nutrition, are also a good indication of health or the reverse, and when these are available I shall use them. Such figures are useful because what really concerns us is the complex factor of "stamina". We are only concerned with height and weight in so far as we believe that they indicate the presence of this central and essential physical advantage, and although it is safe to assume that measurable growth is related to the development of healthy organs, it is possible that a judgement based on height and weight may slightly exaggerate the drawbacks imposed on a child whose diet does not allow of maximum growth. This is because the growing years are limited; if a child is insufficiently fed during them it can never retrieve its loss in height, but it is not impossible that improved conditions in later life may enable it to attain full health. On the other hand early dietetic deficiencies may give rise to ineradicable physical faults which are not the less serious because they cannot be exactly measured. The latter view is the one

Age.	Public School.*	Cathcart (9).			Christ's Hospital School (17).	Council School, Boys, 1927 (4).
		Students.	Em-ployed.	Unem-ployed.		
5	—	—	—	—	—	41.4
6	—	—	—	—	—	43.0
7	—	—	—	—	—	45.4
8	—	—	—	—	—	47.8
9	—	—	—	—	52.2	49.2
10	—	—	—	—	53.7	51.3
11	—	—	—	—	55.2	52.7
12	—	—	—	—	56.7	55.0
13	61.9	—	—	—	58.6	56.2
14	63.7	—	—	—	61.1	58.0
15	65.3	—	60.4	59.6	63.7	—
16	68.1	—	62.9	64.3	66.0	—
17	69.8	68.5	64.9	62.8	67.7	—
18	70.8	68.1	66.1	64.4	68.7	—
19	—	68.4	66.3	65.8	69.4	—
20	—	68.6	66.7	65.9	—	—
21	—	68.6	66.8	66.2	—	—

Fig IV and V
 Table and Graph from Orr, "Food, Health and Income" showing average heights of different socio-economic classes.



most widely held, and most authorities believe that the earlier the period of deprivation the deeper and more ineradicable its effects on health and adult life.

When we consider the question of the relationship between growth and diet in children it is significant that in all countries in which there has been any investigation of the subject a notable difference has been found in the heights and weights of the different social classes. Paton and Thompson (80) quote five authorities for Germany, one for Switzerland, and three for America, as finding the same result and we have, of course, evidence of this difference in the British Isles. In some cases the difference may be inherited; for instance it has been suggested that apart from ordinary selection in favour of tallness the height of the English wealthier classes may be accounted for by the tall Norman stock that was introduced to England at the Conquest. Even if this were so, (and it is difficult to believe that the handful of adventurers who came over with William I should have had effects on the population as far reaching and as tidy in their socio-economic incidence) this will not account for results in Germany and Switzerland. Still less will it account for them in America where the generations are insufficient in number for an aristocratic type to have become genetically established, and where there has been no super-imposed aristocracy of conquest. The universality of the difference in heights and weights between different classes in countries of varying racial and social composition suggests that the cause lies in some uniform factor such as the higher standard of living in general, and eating in particular, which the rich everywhere enjoy.

The difference between the classes in Great Britain is illustrated by the table which I reproduce from "Food, Health and Income," (Figs IV) and by a graph from the same source which makes the facts even clearer. (Fig. V)

In this table the figures are taken from a Public School which remains anonymous, from E.P.Cathcart "The Physique of Man in Industry," from the "Industrial Health Research Board" Report No. 71 from G.E.Friend, "The School-boy" and from the B.O.E. Annual Report for 1929.

We can see from the table and the graph that at the age of fourteen the Public schoolboy, who would belong to Orr's group 6, is more than five inches taller than the Council schoolboy of the same age, who would belong to groups 1 to 4; and that when he is eighteen the Public schoolboy is more than four inches taller than the employed worker, and six inches taller than the unemployed worker. The place of Christ's Hospital in this table is important. Christ's Hospital is a heavily endowed school with many entrance scholarships which are won by children from the poorer sections of the middle class and from the "working" class, and it is therefore a school which contains a high proportion of able children. If we discount the theory that the greater stature of the aristocracy is due primarily to an ancestry of tall stock, we must accept either the theory ~~an~~ that their tallness is due to a general superiority in vitality and efficiency which has earned for them a commanding position in the world, or the theory that it is due to their favourable environment. The evidence is that Christ's Hospital has as high a level of ability as the average Public^{boarding} school, yet we find that at fourteen years old Christ's Hospital boys are 2.6 inches shorter than Public schoolboys of the same age. Christ's Hospital boys would belong to income groups 3 to 6.. This result suggests that of the two theories the one which counts environment as being the chief cause of class differences in stature is likely to contain more truth than the theory that the differences have a genetic cause and are linked with superior ability.

Kerr (54) found that thirteen year old Public schoolboys averaged four inches taller than Elementary schoolboys of the same age, a result much the same as Orr's, and Dr. Norman Bathurst is reported in "Nature", September 1939, as finding the same results in his investigation into the development of adolescents between the ages of thirteen and eighteen. Eicholz demonstrated a finer gradation of the same general law when he compared the measurements of children from similar types of school, those run by public authorities. The children he examined belonged all of them to the lower social classes, and it is highly improbable that any selective agency gave the advantage in height to the less poor of his subjects. He found as much as two inches difference in the average heights of children from relatively "good" areas as compared with children from schools in relatively poor areas. He gave this information to the Committee on Physical Deterioration of 1903, but the validity of his findings is not altered by the fact that they are more than thirty-five years old.

In younger children also we find correlations between socio-economic class and growth. Spence and Charles in their "Investigation into the Health and Nutrition of Children of Newcastle-upon-Tyne between the ages of 1 and 5 years"⁽¹⁰¹⁾ give the following heights and weights for the children they examined:-

Children of the well-to-do.....	25%	above	normal	height
" " " poor.....	2%	"	"	"
" " " well-to-do.....	5%	below	"	"
" " " poor.....	47%	"	"	"
Children of the well-to-do.....	48%	above	normal	weight
" " " poor.....	11%	"	"	"
" " " well-to-do.....	11%	below	"	"
" " " poor.....	55%	"	"	"

Babies and very young children show the same strongly marked difference in development rate between rich and poor. In the Sixth Annual Report of the Birmingham Infants Health Society, Pooler gives the following rates of growth during the first year for infants in families of different incomes:-

Average Income per Head less Rent	3 weeks	13 weeks	26 wks	39 wks	52 wks
	lb. oz.	lb. oz.	lb. oz.	lb. oz.	lb. oz.
1s. 7d.....	8 - 1	10 - 9	12 - 1½	15 - 11½	17 - 1
2s. 11½d.....	8 - 3	10 - 10	13 - 14	15 - 12½	17 - 8
4s. 11½d.....	7 - 15½	11 - 1½	14 - 3	16 - 11	18 - 11

It can be seen from this table that the growth rates of the three groups are maintained at a steady speed, for each of the groups, but that the speed of each group varies according to the economic category of the family. The figures are taken for the year 1913, so that although the groups may legitimately be compared with one another they cannot be compared with budgets of working-class households to-day, for the cost of living was very much lower in 1913.

The children from Pooler's wealthiest class were actually lighter at birth than those of his poorer classes, a fact difficult to explain except on the grounds that his statistics were based on too few cases and were therefore subject to accident. This brings us to the question of pre-natal growth and the extent to which it is affected by the nutrition and health of the mother, a very important question in considering the health of poor children if doctors are right in thinking that the earliest years are the most influential in deciding adult health. It appears from Pooler's results that the foetus is largely independent of its mother's nutrition and that its growth is impeded very little by deficiencies in her diet, but that after birth her diet affects her milk supply and has an effect on the child's growth. Also we must remember in this connection that the

other concomitants of poverty besides poor nourishment may account for the different rates of growth of the three categories - parental ignorance, bad air, over-crowding and exposure to infection. It may be these factors which account for the fact which emerges from a study of the records of the children's clinic of Stockton-on-Tees, that whereas most children are born free from serious defect, numerous defects develop between the ages of six months and one year. This is the period during which breast-feeding, about which the mother can make no mistake is replaced by solid food.

Murray (71) in her inquiry into the effect of social conditions upon birth-weight and birth-length, quotes fourteen German research workers who, as a result of their experience during the 1914-1918 war years came to the conclusion that there is a decrease in birth weight as a result of maternal under-nourishment, but she herself on the results of her investigation in England claimed that her correlation was not significant. The conflict between the finding of Dr. Murray and the German investigators can probably be resolved by the answer that the parasitic character of the foetus enables it to flourish despite a mild degree of malnutrition and exhaustion on the part of the mother, but that it is adversely affected by an extreme degree of maternal debility. Dr. Murray did not examine any but full time primiparae, and even allowing for the strain on many of the women entailed by late marriages, and the expense of getting a home together, these cases of first children are seldom the ones in which there is serious privation. The mother may not be able to spend what she ought on food, but she begins her first pregnancy with her full complement of health and her physical reserves may not be exhausted by the end of the nine months. It is the woman who is worn out by the bearing and nursing of several children on a poor diet whom we should expect to find unable

to bear healthy babies. Murray thinks that the mother pays heavily for the health of her child as measured by its birth-weight and birth-length, and her subsequent children may help to pay the price. Fourman (71) who studied birth-weights in 1901, found that healthy mothers averaged children of 3,335 grams birthweight whereas weakly mothers averaged children of 2,995.4 grams. From this we can argue that living conditions which depress the health of women tend to handicap their children from birth. Murray found that the children of unmarried mothers, girls who, in many cases had been exposed to strain and privation during their pregnancy, were in the neighbourhood of four ounces below average weight. Hogben (45) reports that the defect known as "Mongolism" appears usually in the younger members of large families; since position in the family cannot affect the genetic constitution, and since Mongolism is a congenital defect, it appears that Mongolism may be a result of maternal exhaustion. Pre-natal environment in some cases may have disastrous and permanent effects upon the physical and mental health of the child.

It will be useful to study the Infant Mortality Rates in this connection, and their relationship with the mortality rates of married women. The mortality table which I give below is compiled from the Registrar-General's classification of occupational groups according to social class for the years 1930-1932.

Social Class	Standard Mortality Rates of:-		Deaths of Infants per 1,000 live births
	Males	Married Women	
1. Professional etc.	90	81	33
2. Intermediate between 1 and 3.	94	89	45
3. Skilled Workers	97	99	58
4. Intermediate between 3 and 5.	102	103	67
5. Unskilled Workers	111	113	77
6. Percent. excess of 5 on 1	23	40	133

This indicates a high correlation between poverty, the health of the mother, and the health of the child; but it must be remembered that the nutritional factor is not the only one concerned and reflected in these figures. The best evidence for the effect of correct nutrition on the health of expectant mothers and of the effect of maternal nutrition on infants is provided by the results of an investigation carried out by National Birthday Trust Funds 1935 - 1937. In this experiment 10,384 expectant mothers were given special foods and compared with 18,854 expectant mothers in the district who received no help of this kind. The maternal mortality rate of the experimental group was 1.63 per thousand births, that of the control group 6.15. The difference of the infant mortality rate was even more notable. The infant mortality rate for the 3,064 cases of the fed group which were recorded was 57 per thousand births; that of the 4,781 cases of the control group was 102 per thousand births. Lady Williams in reporting the experiment in the "Times" December 8th, 1937, points out that the cost of the food amounted only to

13s. 4d. for each woman, and that it was not the increase in quantity which improved their health, for the increase in quantity was negligible, but the addition of the mineral salts and vitamins which the food contained. The food was a prepared food containing a high proportion of these constituents.

The general principle which the results of the Birthday Trust Funds experiment set out is maintained by figures given in "Nature" 28/3/36, which give the infant mortality rate for seven depressed ports in the slump years 1927-33 as 87 per thousand births, whereas the rate for eight southern towns of various kinds, including Southampton where there was a great deal of poverty, for the same period was 58 per thousand births. This article also showed how in bad years the maternal mortality curve followed that of the infant mortality curve, although in prosperous years the curves appeared to have little relation to one another. This is significant as showing from another angle the effects which poverty has on the health of women and young children, and as showing how a slight depression in the standard of living is enough to take a heavy toll of life.

The process by which poverty sends up the death rates for children used to be called with some complacency "the elimination of the unfit" an elimination which was held to work in two ways; firstly it was commonly assumed that the reward for ability was a position in the wealthier classes so that the poor were assumed to be genetically less fit than the well-to-do and the discouragement of their rapid rate of reproduction was held to be good for the race; secondly it was argued that it was in any society good for the unfit to be prevented from reaching maturity, and that the decadence which some aristocracies showed was due to the preservation of the delicate and unintelligent amongst their members. This position is now untenable, for we know that the conditions

which eliminate the unfit are also the conditions which create the unfit, and that for every child that is killed by harsh circumstances there are others who survive, but survive burdened by ill-health and deformities which make them a liability instead of an asset to society. We are not placed in the quandary of having to preserve our race by uncivilised and brutal treatment of its less fortunate members, in this matter kindness will bring its own reward, and cruelty its own inexorable punishment.

Incidence of Sickness Amongst the Poor

Other physical inferiorities besides slowness of growth have been observed amongst children from poor homes. Miss Boyce mentions that her children were often ill, and Segal says of his class of backward children in a London slum that his pupils suffered from bad glands, carious teeth, eye troubles, discharging ears, a tendency to rickets and bronchitis and a liability to catch infectious diseases. Teachers all know that children in schools in poor areas are absent oftener than children in wealthier areas. The higher degree of illness in children living in poor conditions affects them both in diminishing their physical capital and in making them backward in their school work. Many children must lose a free place in a secondary school because of illness or ill-health in the months preceding the scholarship examination.

In connection with Segal's observation that ear troubles afflicted his children it is worth noting that deafness is a common cause of backwardness, for the child hears imperfectly, learns imperfectly, and earns for himself an undeserved reputation for dullness. Otis Media is mentioned in the Board of Education Memorandum No. 182 as occurring usually after diseases such as colds and influenza, and the Memorandum

says that lowered resistance to disease therefore means increased incidence of Otis Media, and it adds that "every improvement in hygienic conditions in ventilation, in eliminating overcrowded, poor and damp housing, will diminish the incidence of Otis Media." The memorandum might have added that every improvement in nutrition would have the same effect, since good nourishment increases resistance to the diseases that precede Otis Media.

Another disease which is recognised as being socially destructive and which afflicts chiefly the children of the poor is rheumatism. The Medical Research Council Report No. 114 deals with the connection between poverty and acute rheumatism, and says:-

"Strong evidence of the factors due to environment is afforded by the social incidence of rheumatism; it is a disease which affects but rarely the children of the well-to-do. Its incidence is chiefly amongst the poorer classes. It is by raising the standard of environment improving home conditions so that they approximate to the well-ordered conditions found in such institutions in which rheumatism was found to be much less common that we may hope to reduce the incidence of rheumatism in children. The painful and crippling after results of heart disease that follow rheumatic affection can be prevented by proper rest and care."

Neither in connection with rheumatism nor with deafness is malnutrition given as the primary cause of ill-health. Indeed it is impossible to assess exactly which of the many manifestations of poverty cause a given result, and I propose later to discuss the question of how factors such as over-crowding and lack of sleep interact with the factor of malnutrition, and how these things are seldom found apart and tend to aggravate one another. Burt relates many environmental handicaps to malnutrition on the grounds that what reduces health reduces the capacity to

assimilate and make the best possible use of the food that is eaten. For the moment I will leave this aspect of the subject, and assume merely that where there is overcrowding and insanitary conditions there is usually little money to be spent on food, and that in the case of such children malnutrition plays some part in determining the children's liability to disease.

Malnutrition may be counted as a secondary cause of diseases such as rheumatism and deafness, but there are other diseases which are known to be caused primarily by an improper or insufficient diet, and of these we can say not merely that they appear together with poverty, but that they are caused by it. Carious teeth, showing poor ossification, rickets, anaemia (in some of its forms) and tuberculosis are diseases of this kind.

According to Mellanby (67) 80 per cent. of the deciduous teeth of British children are imperfectly developed. Probably this is partly due to the dietetic habits of modern society, but a diet deficient in minerals and vitamins is known to be unfavorable to good dentition, and if we look at Orr's chart (page 111A) we can see that the diets of the lower income groups are deficient in these constituents. The fact that the incisors, which are in the most advanced state of development before birth, are better calcified than the molars which develop later supports the suggestion of the report of the Birmingham Infants' Welfare Centre that expenditure of the home upon food affects a child more after birth than before it.

Rickets is a disease which has diminished in recent years, an improvement which we would expect in view of the increased consumption of food and the higher standard of living. It is, however, a disease of which it is difficult to assess the incidence exactly, because whereas clinical examination reveals the grosser rachitic deformities, minor imperfections can only be discovered

by radiological examination. This is shown by the fact that the L.C.C. Annual Report for 1933 gives only 0.3 of the pupils in L.C.C. schools as suffering from rickets whereas a special examination of 1,638 unselected children in 1931 showed that 87.5 had one or more signs of rickets (85). The grosser forms of the disease, characterised by marked bony deformities, have disappeared largely through increased consumption of food and improved social services, but the prevalence of the less serious forms of rickets shows that there are deficiencies in the diet of the greater number of elementary school-children. Even the less serious forms are almost unknown amongst the better fed classes. Orr reports Mader and Eckhard (77) as finding that children with rickets "Show a higher incidence of complications and a higher death rate from common diseases such as whooping-cough, measles and diphtheria than do those in the same environment without rickets." The likelihood is that the poor nutritional condition of these children causes the rickets and also makes them unable to combat successfully the dangers of epidemic diseases.

Anaemia is also a disease of which one form, nutritional anaemia, is due to an inadequate diet, and investigations have shown that where least is spent on food anaemia is commonest. The school Medical Officer of Warrington in 1935 (88) made a study of the subject. He divided the children he studied into two groups. Group A was a routine medical inspection group of school children, a group which was probably reasonably well nourished by ordinary standards for Warrington is a prosperous town. Group B consisted of children who had been selected on account of their poverty as recipients of free milk. The haemoglobin content of the blood of a healthy child should be at least 90, but in Warrington only 75 per cent. of group A and 51.5% of group B showed a haemoglobin content of over 70. Spence (101) in his comparison of the children of the well-to-do in

Newcastle with the children of the very poor, found that none of the children of the well-to-do suffered from anaemia, but that 23 per cent. of the children from poor homes were definitely anaemic. It is possible that the children suffer from the anaemia which exists amongst women of child-bearing age at low economic levels owing to the extra demands on iron made by pregnancy. Davidson has published in 1933 in the British Medical Journal, and Mackay in 1935 in the "Lancet" articles showing the extent of anaemia amongst poor women. Unfortunately their results are in one sense eene inconclusive, since no comparable figures are given for well-to-do women.

Tuberculosis is the most common of the serious diseases of which malnutrition is usually a pre-condition. It appears from what C.M. Burns writes in the Journal of State Medicine 1934 that children who drink relatively large quantities of milk suffer less from non-pulmonary tuberculosis than children who drink little milk. And it is known that in Germany during the 1914-1918 war the death rate from tuberculosis amongst all ages of the population increased, and that the increase was most marked in the highly industrialised areas where the food shortage was most acute. Not only did the disease increase in its incidence, it also increased in virulence of type. The fact that in England in 1927 the Registrar General's Report shows that the death rate from tuberculosis is nearly three times as high amongst unskilled labourers as it was for the higher ranks of business and professional life suggests that an unfavorable environment assists the disease, but against this must be the considerations that heavy manual labour may pre-dispose to it, and also that ill health tends to drive men from the ranks of the successful with good jobs to the ranks of casual labour. We are dealing with a vicious circle of causation in which poverty, ill-health and inefficiency are inter-related.

I suspect that malnutrition does not do its gravest damage through the terrible and mortal diseases such as

tuberculosis with which it afflicts a few of its victims, but through the minor ills which are connected with indigestion and with which it afflicts large numbers of the poor. Ill-chosen meals, containing a heavy surplus of carbo-hydrates irregular meals, insufficient meals, the unhealthy stimulus of strong tea, these dietetic faults are cumulative in their results, since once the functioning of the digestion is disturbed the system is unable to assimilate even the scanty food which it receives, and the unhealthy condition progresses until it manifests itself in ways which take the sufferer to a doctor. One of the symptoms of a serious degree of malnutrition is a lack of appetite for food, a sign which indicates that the digestion is deranged. A multitude of minor ills which destroy happiness and efficiency and which sometimes lead to serious illnesses later in life, can be traced to bad dietetic habits which have been eroding the resistance of the constitution, possibly since the early months when the child was weaned, and parental poverty or unwisdom began to decide what he should eat.

It would be possible to give many statistics showing differential death rates for the different economic classes. I have given already the death rates of the socio-economic classes for the whole of England and Wales on page 156. There are also figures showing that the mortality rates for the different districts of cities of Great Britain vary inversely with the average income per head of their inhabitants, and the sickness rates remain constant in their relationship with the death rates. Health is a continuous variant of which death is one extreme. Ill-health and poverty are found always together, and although this fact does not in itself prove that the one is caused by the other, the experiments which I propose to describe in the next section suggest that a great deal of ill health is caused by the agency of poverty.

RESULTS OF EXPERIMENTS SHOWING IMPROVEMENT IN DEVELOPMENT AS A RESULT OF IMPROVED NUTRITION

The evidence to the effect that the children of the poor grow more slowly and are therefore when they reach maturity smaller and lighter than the children of the well-to-do does not in itself provide any proof that improved conditions in general and improved nutrition in particular would alter their rate of growth. For proof that the cause is partly environmental we must consider experiments in which the child in poor circumstances has had its diet supplemented and see to what extent its growth is then accelerated. Fortunately many experiments of this kind have been carried out, and their results enable us to reach the conclusion that diet has a profound effect on development.

The first example which I shall give of the effects of improved diet is drawn, not from British school children, but from two African tribes. These tribes, the Masai and the Kikuyu, are so far as can be ascertained of similar race and genetic constitution; both live in similar housing and climatic conditions in the Kenya district of Africa. Their dietetic habits are, however very different for the Kikuyu do not hunt much, nor do they live on cattle herds by eating meat and drinking milk; they live chiefly on the carbohydrates produced by their patches of corn, a diet poor in proteins, vitamins and minerals, and which, Orr says, corresponds roughly to his income groups 1 and 2. On the other hand the Masai are a race of cattle herdsman who, at any rate until recent years, held excellent and extensive grazing lands. Not only do they eat meat and drink milk, they have the healthy habit of drinking raw blood. A medical survey of the two tribes (78) proved the adult stature of the male Masai to be five inches taller than that of the Kikuyu, and also that bad teeth, bony deformities, pulmonary and intestinal troubles were twice

as prevalent amongst the Kikuyu. This record is valuable because it shows the universal validity of the laws which emerge from these experiments. In connection with the medical survey of the Masai and the Kikuyu it is notable that the curtailment of the grazing lands of the Masai and consequent curtailment of their animal foods has been accompanied by a deterioration in their health and physique according to responsible observers, and a similar deterioration has been reported of the Basuto in South Africa, who have been reduced to a diet consisting chiefly of maize meal by the settlement of their hunting grounds and the overcrowded state of the reserves which prevents them from keeping large enough herds.

Tests carried out on children in this country confirm the results obtained on foreign races.

Major-General Sir Robert McCarrison (27) experimented with a group of elementary children aged eight to nine years. He took thirty children, fifteen boys and fifteen girls, many of whom came from very poor homes and arranged for the group to be given a supplementary diet which should give them the necessary nourishment ~~diet~~ for full health and development. He took an equal number of the same age to act as a control group, arranging that the two groups at the beginning of the experiment should be as far as possible equal in health and economic status. At the end of five months he took the weight measures and attendance records of the two groups; the results were as follows:-

	Fed Group	Controls	Whole School (236 children)
Attendance	94.5%	92.8%	89.4%
Weight Increase	2.6 lbs.	1.6 lbs.	-

The fact that the control group has a worse attendance record than the whole school is reassuring if it means

that the controls were chosen to give safe results, but it is probably due to more frequent absences of younger children; the habit of drafting older children from their elementary schools to senior and central schools brings the average age of many elementary schools below that represented by the eight to nine group and would increase the elementary school percentage of absences.

McCarrison's results should be compared with those of Dr. Corry-Mann (24). Corry-Mann supplemented the diet of forty-one boys in an industrial school. The diet ordinarily given at the school was assumed to be sufficient for health and normal development, and no doubt the boys in it would none of them fall into the Board of Education C and D categories. The supplementary diet was a pint of milk a day, and this addition was continued for a year. The result was the following improvement in the heights and weights of the boys receiving the milk:-

	Experimental Group	Control Group
Height Increase	2.63 inches	1.84 inches
Weight Increase	6.98 lbs.	3.85 lbs.

When we compare McCarrison's and Corry-Mann's results we see that the proportional increase in weight of the experimental group over the control group is greater in McCarrison's experiment. This may, of course, be due to the difference in the kind and amount of additional nourishment provided, but it is what we should expect even if the same extra nourishment had been given. For one thing we must not rashly assume that the dramatic improvement obtained during the first few months of a test will be maintained at the same speed over a long period. The children who are most in need of extra nourishment react most quickly and favorably when they receive it, unless they are prevented from doing so by disease. As they approach "optimum nourishment" improvement becomes slower, and it is unlikely that an extra pint of milk would alter

appreciably the growth of a public school boy. Orr reports experiments on Japanese children and Maories in New Zealand which give more rapid increases in height and weight than any experiments in England can show. This because the subjects of the experiments had a lower standard of living than prevails in England.

All educationalists have heard of the series of experiments in granting extra milk to Scottish children which were carried out in 1927 (79). Altogether more than 20,000 children were given the extra milk for seven months, and periodic measurements of the children showed that the rate of growth of those receiving it was 20 per cent. greater than of those receiving their home diet only; Orr and Clark comment that there was a noticeable improvement in health and vigour as well as an acceleration of growth in the children who benefitted.

A more recent and very thorough experiment carried out by the Milk Nutrition Committee of the National Institute for Research in Dairying⁽⁷²⁾ gives results which are more moderate, perhaps because the subjects were better fed in the first place than those of the other experiments. The subjects were 8,435 children chosen at random from the rolls of schools in the following areas:- Huddersfield, Luton, Burton-on-Trent, Renfrewshire and Wolverhampton. I give on page 168 a table from the Interim Report of the Committee showing the increases which it found in height and weight; they are, it will be observed, in the neighbourhood of ten per cent, much lower than the results from other experiments, but it is a positive result, and shows that most children in the British Isles do not get the food which would enable them to reach their physiological maximum.

The "biscuit group" which is shown in the table is a control group, since the biscuit contained no nourishment to speak of, and merely served the purpose of preventing

TABLES FROM THE REPORT OF THE MILK NUTRITION COMMITTEE OF THE
NATIONAL INSTITUTE FOR RESEARCH IN DAIRYING.

1. Height and Weight Increases.

The average increases in height and weight in each milk group expressed as percentages of the average increases in the biscuit group.

Feeding group	BOYS		GIRLS	
	Height	Weight	Height	Weight
5 - 7 years Biscuits	100.00	100.00	100.00	100.00
1/3 pint past.	102.16	101.93	100.00	111.32
2/3 pint.past.	103.02	110.28	104.58	121.25
8 - 10 years Biscuits	100.00	100.00	100.00	100.00
1/3 pint past.	101.54	108.55	105.48	109.78
2/3 pint past.	108.21	113.26	105.48	113.51
11 - 14 years Biscuits	100.00	100.00	100.00	100.00
1/3 pint past.	104.23	104.08	95.98	104.64
2/3 pint past.	107.51	110.43	99.60	102.61

2. Percentage Change in Proportions of Children assigned to Clinical Categories 1 and 3 at the 2nd, 3rd, and 4th examinations as compared with those at Examination 1.

Examination	2		3		4	
	1.	3.	1.	3.	1.	3.
Boys.						
Biscuit Group	-0 38	4 35	0 00	-6 09	12 45	-27 09
1/3 Pint milk	5 36	10 71	3 57	-5 36	11 43	-25 00
2/3 Pint milk	8 33	-2 94	11 46	-10 78	17 71	-27 47
Girls.						
Biscuit Group	3 19	-3 03	12 06	-3 45	13 12	-12 07
1/3 Pint milk	6 62	-11 94	10 41	-20 40	5 68	-23 88
2/3 Pint milk	10 70	-24 32	22 41	-37 84	20 40	-40 53

children and teachers from realising that the milk groups were receiving a nutritional advantage.

Besides measuring the height and weight of the children the Committee tested their muscular development by means of a dynamometer, and found that the groups receiving the milk improved the strength of their pull more than the control group. It also subjected the children to a careful clinical examination, and graded them in three categories. The results of these examinations I give on page 168 . The results of the dynamometer tests and of the clinical examinations are notable in that they support the theory that height and weight are a satisfactory indication of health, and therefore add to the force of the findings of investigators who have recorded height and weight only in their experiments with nutrition.

The extent to which nutrition affects health is shown very clearly by the improvement of London school children who had the "Oslo Breakfast"; this meal consists of wholemeal bread, cheese, salad, fruit, and milk, and the experiment is especially important because the controls were not children receiving no extra nourishment, they were children who were receiving the ordinary two course hot dinner of the sort usually given in schools, and two-thirds of a pint of milk each day, and the difference in health and development between the experimental group and the controls illustrates the sensitiveness of a child's constitution to the kind of food which it receives, and the necessity for a diet rich in minerals, vitamins and proteins. The food value of the Oslo breakfast is as follows:-

Food	Weight ozs.	Protein (Animal) gms.	Protein (vegetable) gms.	Fat gms.	Calories
Milk 2/3 pints	13.2	12.5	-	13.6	252
Bread (brown)	3.0	-	5.4	0.9	204
Butter	.75	0.1	-	17.7	164
Cheese	1.5	11.0	-	13.6	173
Salad	-	-	-	-	-
Orange or apple	-	-	-	-	50?
	-	23.6	5.4	48.8	843

During the nine months of the experiment, from May 1938 to March 1939, the children on the special diet showed the following improvement in growth and health as compared with the children having the ordinary school dinners and two-thirds pints of milk:-

Increase of weight of boys.....	18.2	per cent	great ^{er}
Increase of weight of girls.....	26.2	" "	" "
Increase in height of boys.....	25.3	" "	" "
Increase in height of girls.....	39.8	" "	" "
Haemoglobin content of blood in Experimental Group...	93	per cent.	
Haemoglobin content of blood of Control group.....	81	" "	

The report of the experiment in "The Health of the School Child" says that the experiment was satisfactory in every respect except that of price, for it cost 5.7d a meal, and affords therefore one more illustration of the difficulty of providing the best kind of nourishment for children when the amount of money that can be spent on food is rigidly limited by necessity.

Dr. Fraser Bockington has done very thorough work on a relatively small number of families, and shows clearly the exact relationship of growth and expenditure on food. He gives

the gain in weight of elementary school children, at different income levels and different family expenditure per unit upon food, as a percentage of Adamson's standard of growth. Adamson's standard was worked out in 1923 by finding out the average gain in weight during a year for children of given ages and heights; for instance, by Adamson's standard an average child of four years, who is three feet tall and who grows two inches in twelve months, gains $3\frac{1}{2}$ lbs, so that the gain in weight would be said to be 114.3 per cent. This scale constitutes a ruler capable of measuring children of all ages and sizes, but it ignores the influence that diet may have on development. Dr. Bockington fills in this gap.

The subjects from which Adamson's calculations were made were 70,000 Brighton elementary school children, and, feeling that these results might not represent a physiological optimum, Bockington compared the growth of a hundred boys and girls selected at random from good class residential schools with the Adamson scale, and found that they exceeded it by the following percentages:-

<u>School</u>	<u>Percentage of Standard</u>
Girls	
A.	200.0
B.	151.18
C.	161.05
D.	164.85
E.	154.20
F.	154.00
Boys	
G.	123.84
H.	121.54
I.	153.43
	<hr/>
Average	153.8
	<hr/>

From this it appears that Adamson's scale is 64 per cent. of the physiological, and although a hundred cases are too few upon which to base a conclusion, the figure of 64 per cent. may be accepted because it agrees with the anthropometric records which I have already quoted. Dr. Bockington goes on to show that growth follows very closely the expenditure upon food, and that where expenditure upon food exceeds eight shillings a unit a week Adamson's scale is also exceeded, a result which is valuable evidence as to the cause of the superior height and health of the wealthier classes.

Dr. Bockington also found that the B.M.A. standard A diet is insufficient to enable children to attain their physiological optimum; I reproduce from "Public Health" July 1939 the records upon which he bases his conclusions.

TABLE I.—INCOME GROUPS—SHILLINGS PER WEEK.
PERCENTAGE OF STANDARD.

Family Size in Cost Co-efficients.	40		60		80		100		150	
	Gain.	Diet.	Gain.	Diet.	Gain.	Diet.	Gain.	Diet.	Gain.	Diet.
2-3	—	—	126.5	120.1	—	—	—	—	—	—
3-4	83.2	47.9	118.4	96.9	97.1	100.0	87.5*	165.0	—	—
4-5	70.6	48.8	103.3	84.0	96.0	109.6	128.5	115.3	122.6	128.0
5-6	76.9	55.7	88.0	68.6	115.0	98.4	188.8	100.8	139.0	115.2
6-7	—	—	—	—	118.7	78.5	183.2	103.2	214.3	94.5
Per cent. of children above Adamson's standard and B.M.A. diet...	14.3	Nil	48.2	46.6	48.8	57.1	66.7	86.7	78.8	63.2
Average gain per cent. of standard...	78.7		110.3		104.4		122.3		143.9	
Number of families ...	4		23		28		10		10	
Number of children weighed ...	8		30		45		15		19	
Number of "Leaver" families ...	Nil		4.3 per cent.		46.5 per cent.		50 per cent.		70 per cent.	

There are some irregularities in these results, which may be due to the small number of children examined in each group, but their general trend is clear enough. The improvement of the largest families in diet and growth rate is probably due to the earnings of the older children, for Dr. Bockington found that directly the older children began to earn the diet of the family improved. Sixty four per cent. of the children in his "Middle" type families fell

* Group marked with an asterisk in the Table contained one child in a family where the proportion of animal protein foods was exceptionally low.

below Adamson's scale, and this increased to 83 per cent. where there were more than four children.

We can see from the table that below the income of £2. a week the average growth attainment falls short even of Adamson's standard, and it is not until the weekly income exceeds £5 that the average growth attainment reaches the residential school standard. That it does reach the residential school standard at an income of more than £5 a week is an indication that heredity probably plays no part in determining the superior stature of the well-to-do classes.

Dr. Bockington comments that the growth results in nearly every case exceeded those which would be expected of the diet. This, he says, suggests "that the standard used for measuring the rate of growth is somewhat less below the physiological level than that used for measuring the diet, or, in other words, that the B.M.A. (1933) diet is probably more below physiological level than is Adamson's scale. Since Adamson's scale has earlier been shown to be about 64 per cent. of the physiological, the B.M.A. diet is in all probability less than 64 per cent. of the physiological."

If this is true nutrition in the British Isles is more unsatisfactory than other investigators have made out, and the number who suffer from malnutrition is larger than has been calculated, for it is usual to accept the B.M.A. diet as being sufficient for children's needs. The tendency of recent research, if we judge from articles in "Nature" and "The Eugenic Review", is to support Dr. Bockington's conclusions, and to grant nutritional factors a larger share in the shaping of human lives and societies than they have been allowed in the immediate past.

Dr. Bockington has also inquired into the exact reason for the poor growth of children whose parents cannot afford to spend much on food, and he finds it to be the

TABLE IV.—THE RELATIONSHIP BETWEEN GAIN IN WEIGHT AND CONSUMPTION OF (a) ANIMAL PROTEIN, AND (b) ENERGY FOODS IN FAMILIES GROUPED BOTH ACCORDING TO GAIN IN WEIGHT AND TOTAL EXPENDITURE ON FOOD.

Gain in Weight.	Purchases of Food in Shillings per Unit per Week.								
	Group A. (9s.-11s.).			Group B. (7s.-9s.).			Group C. (Under 7s.).		
	Animal Protein.	Energy Constituents.	Ratio A/E.	Animal Protein.	Energy Constituents.	Ratio A/E.	Animal Protein.	Energy Constituents.	Ratio A/E.
Less than 50 per cent.	4.38	5.62	0.779	3.47	4.40	0.779	0.92	2.30	0.400
50-100 per cent. ...	5.08	5.83	0.897	3.87	4.09	0.976	2.53	2.80	0.934
100-150 " ...	5.53	5.07	1.151	4.08	3.89	1.091	3.28	3.06	1.136
150-250 " ...	5.55	4.09	1.298	4.38	3.82	1.178	3.17	3.13	1.012

Fig VI

Table made by Dr. Bockington, published by "Public Health" in April, 1939, illustrating the importance of a high ratio of animal protein to energy producing foods in the diet if growth is to be satisfactory.

expensive nature of animal proteins and the demands which growth makes for this form of food; he comes to the conclusion that the B.M.A. diet is at fault for children in the ratio of energy producing foods to the animal proteins which are contained in meat, fish, eggs, milk, butter and cheese. This is, of course, a criticism which I have already mentioned and which other authorities have made of the diet, but in this case figures are given showing the exact relationship of growth to the proportion of money spent on proteins and energy producing foods respectively. The table below, from "Public Health" April 1939, gives some of his results for children whose unit food expenditure varied from approximately six shillings to eight and sixpence a week.

Table . The relationship between gain in weight and expenditure on (a) animal protein, and (b) energy foods in families grouped according to gain in weight

<u>Gain in Weight</u>	<u>Expenditure per Unit per Week</u>	
	(a) Animal Protein	(b) Energy Constituents
Less than 50%	2.92s.	4.10s.
50 - 100%	3.92s.	4.38s.
100 - 150%	4.23s.	4.04s.
150 - 250%	4.65s.	3.98s.

This shows how little under-nutrition is connected with malnutrition, and explains why the conquest of under-nutrition which has taken place during this century has not brought with it the abolition of deficiency disease and the achievement of full physical development for all but the constitutionally unfit of British School children.

Any one who compares the experiments closely will find apparent discrepancies in the results. For instance, why is the result of the inquiry of the National Institute for Research in Dairying into the effect of milk upon growth so

much more moderate than the results obtained by McCarrison, Corry-Mann, and the Scotch inquiry? Why do the Warrington school children show a much lower haemoglobin content in the blood than London school children? It is true that the London children concerned in the Oslo breakfast experiment were receiving extra nourishment, but taking into consideration the conditions of the two inquiries this does not seem enough to account for the difference. I am, in this conclusion prepared to say only that the quantity and kind of nourishment which children receive has a profound effect upon their growth and their resistance to disease. As for the precise extent of the effects of malnutrition we cannot assess it because poverty and malnutrition amongst human beings do not exist in a laboratory; we can say from controlled experiments that improved nutrition is capable of increasing children's growth rate between ten and twenty per cent. and we can be certain that the growth rate is some indication of health. This conclusion may sound modest, but even ten per cent improvement in the growth rate makes a very considerable difference to the adult physique.

Malnutrition amongst children is a subject about which much has been learnt in recent years, but about which much more remains to be discovered. Although investigators have found the correlations existing between backwardness and poverty, between income and diet, and between diet and health, we still lack the complete knowledge of the degree and character of malnutrition in Great Britain which could only be obtained by the combined research of medical and educational authorities. Professor Le Gros Clark, writing in "Nature" in 1939 says:-

"In great Britain, for example, there are no proper records which show the variability of different sections of the population living under different nutritional conditions and in different environments. Still less is there any real knowledge of the potentialities for growth and development of native populations living under optimal conditions of

of nutrition and hygiene."

There are missing links in the evidence which have forced me too often in this section of my work to accept provisionally the most probable assumption instead of building upon the proven fact. Nevertheless there can be no doubt that malnutrition in childhood imposes a heavy and lasting handicap upon those who suffer from it, and that despite the improvement in nutrition of recent years there are many people in Great Britain who are under-fed or improperly fed. When I began to study the subject I expected to find malnutrition one factor of only equal importance with many others in limiting the powers and opportunities of the child from a poor home. My reading on the subject has now convinced me that it is the most important factor. We commonly assume that good health is the foundation of well-being and achievement; we inquire solicitously after the health of our friends; we drink to one-another's health at festivities. Weariness, or a slight degree of ill-health is the first excuse we make to ourselves and others if we fail in energy or lower our standards. We cannot learn when we are tired, we cannot concentrate, we cannot remember, we cannot judge justly. We are prepared to admit that a certain native tribes are devitalised by a diet of bananas, and we recognise that the demoralisation of some districts of America is due largely to the anaemia and debility produced by the hook-worms. We must equally admit that English children who live on a diet that is deficient in quality or quantity will be unable to work with persistence and concentration. There are children living in the homes described by Burt, Boyce and Segal who always feel slightly hungry, slightly tired, and slightly out of sorts, and who do not mention these things because their condition is so unchanging that they do not know that there is anything the matter with them. Malnutrition is not the only cause of their indifferent health, but it is the most important one, and most of the other causes are related to it.

HOUSING CONDITIONS AND THEIR INFLUENCE UPON HEALTH

HOUSING CONDITIONS AND THEIR INFLUENCE UPON HEALTH

The word malnutrition does not necessarily imply a lack of the food values needed for growth and health; the word is often used to denote the state of debility which is caused by failure to assimilate food, and malnutrition may therefore be caused by some environmental misfortune or by a constitutional weakness on the part of the child which makes it unable to flourish on the normally sufficient amount of food. Burt in "The Backward Child" gives the following causes for malnutrition other than insufficient quantity of food:-

Ill-chosen, ill-cooked food.

Vitamin deficiency.

Carbo-hydrate surplus.

Excess of strong tea.

Weak digestion.

Extreme fatigue.

Late hours.

Closed windows.

Lack of light.

Lack of exercise.

With the first five of these I have already dealt. The other five causes relate the subject of malnutrition to the other adverse environmental conditions which assail the child from a poverty-stricken home, and I shall now discuss the late hours, closed windows, lack of light and exercise, and extreme fatigue, all of which can, I think, be attributed wholly or partly to bad housing conditions.

Those of us who are fortunate enough to live in pleasant surroundings sometimes regard with horror and pity the close-packed hideous, dark little houses which

are inhabited by the poor of large cities. Those of us who have visited the towns of Scandinavia and Germany must bitterly regret the historical development which gave England the lead in industrialisation and which caused her to make the mistakes in building and planning by which other nations have profited. Now, unfortunately, we are so used to the grim and squalid discomfort of our slums that only the most pitifully slow and inadequate schemes are made for their destruction.

It has not needed sociologists or statisticians to notice that the streets which have the lowest rentals and which are narrowest and dirtiest, are the ones in which ragged children crowd most thickly into the gutters to play.

Some of the horror of the observer is false and sentimental. The people who live in these streets are used to it. People can be happy in a slum if their wages are enough and their personal relationships are happy. But when one has said this one has said very little, for ignorance of grace and beauty may be one of the greatest of all deprivations; personal relationships are seldom very happy in circumstances like theirs, and their wages are seldom enough, for people do not prefer to live in slums and only live in them when they can afford to live nowhere else. The inhabitants of slum districts usually have almost all the difficulties of poverty with which to contend, and the shapeless women who stand in the doorways in the evenings have clearly written on their faces and figures a medical history of child-bearing and anxiety.

How much people dislike living in slums is shown by their preference for rehousing estates, even when the cost of transport and inconvenience of living out of town means that life on the estate is more expensive than they can easily afford. At Withenshawe, a housing estate near Manchester which has most of the disadvantages inherent in schemes of this kind, four hundred and eight families were questioned as to their feelings about living there. Of

FIGURES PUBLISHED BY THE GARDEN CITIES AND TOWN PLANNING
ASSOCIATION, SHOWING INFANT MORTALITY RATES FOR GARDEN
CITIES AND OTHER AREAS

	Infant Mortality Rate
Letchworth.....	33.6
Welwyn.....	25.0
Manchester City.....	71.0
Manchester Clearance Areas.....	120.0
Wythenshawe.....	60.0
England and Wales.....	62.0

this number three hundred and four preferred to stay, and of the twenty two families who wanted to go back to town most only wanted to return because they could not afford their new homes, and stipulated that they would not go back unless they could be sure of going to a clean house⁽⁵⁰⁾. The proportion who preferred to stay becomes more significant when we remember that these people have most of them lived all their lives in a large town, and that their habits and amusements were all adjusted to it, and that Withenshawe has the remoteness and quiet of a country village. The reason that most of them gave for wanting to stay was that their health was so much better after they had moved, and many wanted to stay especially on account of their children's health, and this last point seems to be the one which impressed the investigators most strongly. They said that they were told by parents that children who "never ate any breakfast" or who "would only eat cake for breakfast" now clamoured for bread and butter. "Believe me," said one father, "my children call for bread and butter in the middle of the night." Another parent said "They wouldn't eat it unless they had a relish to it in Hulme" (the slum they had left) "but plain bread and butter suits them in Barlow Moor."

None of the children who were questioned wanted to go back. They apparently recognised instinctively that their health and happiness were best served by something which approximated to country life.

The stories which one sometimes hears of how the poor prefer close proximity and squalor and find a bathroom useful chiefly for coal storage are hardly worthy of mention, for they are no longer believed by those who give serious thought to social problems; they are based most of them upon exceptional and extreme cases which provided material for tendentious arguments. No one prefers to be harried at night by marauding vermin, to have to wash with a kettleful of

hot water at a sink, to have stained, damp walls, to live under a perpetual pall of smoke, and to have the pavements the only playgrounds for their children. It is true that there are many people who submit easily to such conditions and who make little effort to combat their difficulties, but submission is a different thing from preference.

In general it is difficult to separate the factor of bad housing from the other disadvantages of poverty because people prefer to live in light and clean surroundings and tend to move to better districts directly they can afford to do so. A sum varying between 20 per cent. and 33 per cent. of a poor man's income is usually spent on rent, and as the ratio of expenditure on food and rent remains constant for families below or near the poverty line, shortage of food and bad housing are usually found together and the results of the two things are hard to disentangle. The factors are, however, found isolated to a certain extent in the housing estates of cities which have undertaken schemes of slum clearance; and here we can sometimes compare the health of those who enjoy cleanliness, good air and light with the health of those left behind in the slums, who enjoy none of these things but who have slightly more to spend on food because their transport charges are less. A valuable collection of material on this subject has been compiled for the "Housing Centre" (115) and most of the facts and figures which I shall use in this section come from it.

One interesting conclusion which emerges from a study of the relationship between housing and health is that town life is not in itself necessarily less healthy than country life. It is true that the mortality rates increase with the density per acre, but it does not appear that the density of the population per acre is a cause of the increase; it appears rather that the increase is due to the overcrowding within the houses and the fact that people who can afford

little for food and the other necessities for a healthy life must in the towns live close together on account of ground rents. Killick^{Millard} (69) supports this by showing that the mortality rate in London is lower in relation to the density of population than in other parts of the country. Now in London density of population is less closely related to poverty than it is in other parts of the country because of the high value of land and of the advantages of living near the centre of the city. Therefore good class property is built in London to hold a large number of people per acre, for those who want to live near their work, even if they earn high salaries or wages, are compelled to live in flats or tenements carrying population at a density which would be found only in slum conditions elsewhere. It appears from the London mortality rates that we need not mind children growing up in large cities provided that their homes are clean and healthy and their food good. Stocks (102) shows that infant mortality rates are more affected by density per room than by density per acre, and estimates that if overcrowding were reduced to the standard of the best groups quoted in his paper, that is 0.625 persons per room, a saving of 9,000 deaths of children under five years old out of every 60,000 such deaths might be expected, and a saving of 10,000 at later ages. If the whole mortality were attributed to overcrowding these savings would be in his estimation 15,750 and 33,000 respectively; but of course it is clear that the deaths of people living in overcrowded conditions cannot be due to one single cause, and Stock's estimate can only be an intelligent guess based upon a personal judgement of causes. Nor can we be dogmatic in interpreting the figures given by the Registrar General (82) for density of the population and the infant mortality rates. He shows that the infant mortality rates for 1930 to 1932 increased regularly with the density of the

population. County boroughs with a mean density of less than 0.7 persons per room had an average infant mortality rate of 57.6 per thousand births; those with densities exceeding 1.15 persons per room have an average of 92.7.

It is worth while to give details of the figures for overcrowding and the death rates in Tyneside area, for whilst Tyneside suffers from all the troubles of poverty it suffers in an especial degree from overcrowding, and when we compare the figures for Tyneside districts of varying affluence, and then compare these figures with an average county borough and the average for the whole of England and Wales, it appears as if overcrowding accounts to a certain extent for the high standard of death rates and to a considerable extent for the infant mortality rates and the tuberculosis death rate. (68)

	Over- crowding	Families in 2 rooms	Stand. D.Rate	Inf.Mort Rate	T.B.D.R.
Greenock	57.9	-	-	-	1.52
Hebburn	46.9	36.8	14.8	101	1.29
Jarrow	42.3	32.0	15.6	101	1.71
Gateshead	37.0	26.9	14.9	100	1.23
Newcastle	33.6	25.3	14.2	96	1.16
Blaydon	38.1	24.8	13.0	86	0.88
Gosforth	13.8	8.8	10.9	70	0.71
Sheffield	12.1	-	-	-	1.09
Av.Co.Bor	-	-	12.8	85	1.00
Eng. & Wales	9.6	10.5	-	62*	0.85

In the book from which the above table was taken, the author, Dr. Mess says:- "Opinions differ as to the relative importance of different factors in causing high infant mortality.....But there can be little doubt that overcrowding, bad sanitation, overwork, underfeeding and worry of the mother, dirt, ignorance and intemperance are among the most potent causes of the loss of infant lives." He

* Not included in the table as given by Mess.

also gives the following figures with the comment that Tyneside has both a high infant mortality rate and an exceptional degree of overcrowding, and the suggestion that the two rates are related to one another.

Deaths in the Tyneside area per thousand births during the first year of life. 1908 - 1926:-

One room families	134
Two room families	118
Four or more rooms	101

Tuberculosis is a disease which finds its victims most frequently amongst the young, and it is therefore a disease of particular concern to those who interest themselves in the welfare of children. One may say with certainty that overcrowding affects the incidence of T.B. Bradbury (118) comments that the high death rate from pulmonary T.B. in Blaydon and Jarrow amongst the age group 0 - 15 is probably due to the unfavorable environmental conditions prevalent in the area. He found that in Jarrow 54 per cent. and in Blaydon 43 per cent. of the tubercular families lived three or more persons in a room, and in cases in which all other possible factors had been eliminated he found that T.B. was found chiefly in overcrowded families. No one suggests that overcrowding actually causes T.B. The cause generally lies in the combination of a low, run down condition on the part of the patient with exposure to a heavy dose of infection. The overcrowding may do little to cause the prerequisite debility, but it enormously increases the chances of the second cause being present. This opinion is supported by Bradbury's finding that insanitary houses and bad ventilation are less important than overcrowding in causing tuberculosis; his results indicate that poverty (without differentiating between the various ways in which poverty depresses people's lives)

is more important than overcrowding. It is probably true that people who are well fed and vigorous can usually resist T.B. even if they sleep in crowded bedrooms with shut windows.

Apart from the danger of infection it is unpleasant to imagine the mental ill effects, especially upon children, and the unaesthetic lack of hygiene when people ~~wh~~ are forced to share not only the bedroom, but in many cases the bed of patients suffering from tuberculosis. The worst cases are removed to sanatoriums and hospitals run by public authorities, but accommodation in these is limited, and cases in the earlier stages often stay at home.

Spence (101) supports the view that bad housing conditions can be survived successfully if the other conditions necessary for health are present when, in connection with his examination of children in Newcastle-upon-Tyne, he says:-

"The results denote that there are children who can be brought up in a state of relatively good health in poor housing conditions where the fault is compensated by good mothercraft, efficient housekeeping, and good fortune in escaping serious illness at an early and susceptible age. On the other hand, this examination of housing conditions shows that there is direct correlation between overcrowding and ill-health or malnutrition." If serious illness and improper diet be accepted as the prime cause of these, the overcrowding in bad housing conditions must be looked upon as an important contributory factor, fostering as it does the chance of mass infection, and impairing the efficiency of the parents in their task of providing a proper and adequate diet for their children.?"

Spence places bad housing as of equal importance with improper and inadequate diet in the list of adverse factors

affecting children from poor homes, because, he argues, the immediate cause of malnutrition is the physical damage done by infective disease early in life under conditions which prevent satisfactory recovery.

Dick (26) also gives proof of the influence of housing upon the health of children. Rickets has been described as a nutritional disease, and I have already said that a poor diet is one of its causes. Dick does not deny the truth of this, but he considers that it is a disease caused equally by lack of sunlight. This was the opinion of doctors fifty years ago, more recently the dietetic basis of the disease has been stressed, and to-day research into the interaction of food and light in creating certain vitamins destroys any conflict between the two theories. In this case both sides are probably right. Dick maintains that no diet, however efficient, will prevent the occurrence of rickets if the child is brought up in slum conditions, and that practically all children brought up in the poorest districts of East London have to struggle through a rickety phase. He examined 1,000 children in Whitechapel and Stepney, most of whom were Jewish, and Jewish children are usually well-cared for and well-nourished, so that it is unlikely that his sample was poorly fed. Yet he found that of the 1,000 children 800 were rickety, or had suffered from rickets with lasting effects. Of the rickety eight hundred only twenty per cent appeared to be badly nourished, but the great majority lived in slum houses. In forty eight per cent of the cases of rickets walking or speech was delayed and many of those who were of school age were distinctly backward. He thinks that lack of sunlight is the essential cause of the disease, and observes in support of this view that ~~in the slums of New York~~

rickets is almost unknown in Italy or Australia, but that Italians in the slums of New York and London suffer from it severely. In Australia the disease is beginning to make its appearance with the growth of towns. I think that probably Dick is right in his theory that the deprivation of fresh air, light and exercise profoundly alters the metabolism of the child and produces an aberation of growth, but it would be rash to assume that bad housing is necessarily the chief cause of the deprivation; climate may have something to do with it, or air pollution; these things in conjunction with poor food may cause the disease. In New York and in the cities of Australia children must get a good deal of exposure to sunlight, whatever their deprivations in other ways.

(66)
 McGonigle^h comes to the conclusion that diet is more important than housing in its effect upon health, and the data upon which he bases his judgement is worth examining, both on its own merits, and on account of the publicity it has received. McGonigle obtained his material from Stockton-on-Tees when a slum area was demolished and its inhabitants were moved to a new estate where they were given new, well-built houses, which had bath-rooms, kitchen-ranges, well-aired food stores, and wash-boilers. Nevertheless during the four years which followed the removal the death rate on the new estate was higher by eight deaths per thousand, a considerable increase, than it had been in the slum which the inhabitants had left, and higher by 6.3 deaths per thousand than the rate during the same period for an equally deplorable slum in Stockton-on-Tees which was not demolished. An examination of the tables compiled from McGonigle's family budgets shows that his figures really prove very little. He examined fewer than seventy families, which means that his figures are subject to accident, nor does he make it clear whether the mortality rate on the new estate was particularly

high in households whose breadwinner was unemployed. He does, however, show that it is useless to improve housing at the cost of such essentials as food. Not only is it that increased rents on the housing estates mean less money for food; the increased cost and difficulty of getting to the centres of employment means that the unemployment figures go up. It was no coincidence that there were many more unemployed on the new estate than there were in the old slum. This is because it is necessary for the unemployed, if they do not want to be struck off the register as not "genuinely seeking work" to go to the factories at opening time hoping that they will get a day's work, and knowing that if there is no work for them they will get the bit of paper which they take along with them stamped with the name of the firm and the date as proof that they had applied. Sometimes this pilgrimage does lead to a day's work. Occasionally it leads to permanent employment. But it is a weary business on winter mornings for men who are poorly fed, poorly shod, and thinly clothed to go the round of the factories, and there is strong temptation not to go at all on some days and save the bus fare, or, if the man walks, not to go to the factories which open at 6 a.m. This temptation is particularly strong for men who live a long way from the industrial districts, and therefore these men are likely to be more often unemployed.

The moral of McGonigle's finding is that it is necessary for municipal authorities when they move the inhabitants of their slums out to the new estates to provide cheap transport during working hours and to lower the rents for needy families. A doctor said to the writer in connection with the slum-clearance estates outside the city of Hull that there is a great deal of illness on the estates because the people cannot afford to buy enough to eat, and other doctors have apparently found the same. Dr.

Keith (84) says:-

"Instances come to light where persons endeavouring to escape from the degrading effects of overcrowding become tenants at a rental which is out of all proportion to income, and leave too small an amount to meet adequately other necessities of life. The problem of overcrowding is largely an economic one."

The Medical Officer of Health for Bethnal Green makes the same point when he says in his 1933 Report that "Unless the accommodation provided by the public authorities is within the means of the overcrowded families it is useless to them."

But when all other things are equal improved housing leads to a great improvement in health. The figures for Withenshaw and the Birmingham statistics show this. Killick^{Milard} (69) quotes the following mortality rates for Birmingham which prove that housing estates need not carry with them the disadvantages which were found at Stockton-on-Tees:-

	Death Rate		Infant Mortality Rate.	
	Corp.Estate	Whole City	Corp.Est.	Whole City
1929				
1929	7.5	13.5	72	79
1930	6.5	10.8	58	60
1931	6.5	11.7	59	71

The figures for the city as a whole include, of course, the figures for the most prosperous areas, and if we compare the figures for the corporation estate with the seven central wards of the city, the parts which contain the poorest inhabitants, we are comparing similar populations and will get a fairer result.

	Death Rate		Infant Mortality Rate	
	Corp.Estate	7 Central Wards.	Corp Estate	7 Central Wards
3 years	6.7	14.9	63	94

These figures are incontrovertable evidence of the importance of good housing in good surroundings. The importance of the proper kind of house, irrespective of its surroundings and the quality of the air, is shown by Sykes (103) and Mair (64), who point out that the death rates are higher amongst the inhabitants of "back-to-back" houses than they are amongst the inhabitants of "through" houses. Back-to-back houses are universally recognised to be unfit for habitation, and conscientious local governing bodies have, since Mair and Sykes wrote, demolished such houses in their areas. One must remember that the rents of the back-to-back houses tend to be lower so that the poorest people, who have in any case the highest death and sickness rates, tend to live in them. Nevertheless the evidence of Sykes and Mair proves the value of sunlight and air, of proper sanitation and washing arrangements, for many of the inhabitants of the through houses whom they examined were extremely poor, and the extra poverty of those living in the back-to-backs would not account for their having a death rate which for some diseases was twice as high, and for others one third again as high as that for the inhabitants of the through houses. Dr. Hope of Liverpool is quoted by Wynne (115) as saying that the average death rate from pulmonary tuberculosis for three years in some insanitary areas containing back-to-back houses was 4 per thousand. When the courts containing the back-to-

back houses ~~are~~ were rebuilt the average for three years fell to 1.9 per thousand. Dr. Tatham produces evidence of a similar kind from Salford. The conclusion appears to be that slum clearance and the rehousing of slum people in aesthetic and healthy surroundings is an urgent necessity and ranks second only in importance to the provision of proper food. In this case it is no use robbing Peter to pay Paul. Assistance from the rates in fares and rent must be given if it is needed to ensure that life on the new estate is not too expensive for the people to manage it. For all country districts and for most cities this can be done without imposing heavy burdens on the rates, but for cities such as Liverpool and Manchester, and especially London the task is harder. Here the breadwinner must travel a long distance to work if his children are to live in a small house which has a garden, the best kind of dwelling for a child, and the problem can only be solved in big cities by building working class flats. At their best these are a satisfactory solution, and something which falls short of the Vienna or Stockholm flats in beauty and comfort may yet provide a home in which a child can grow up in a healthy and peaceful atmosphere.

I endeavoured to assess the number of children who must be malnourished because their parents cannot afford to buy for them enough of the right kinds of food, and I will now endeavour to estimate the number of children who are likely to become malnourished because they live in surroundings which, by depriving them of light and good air and exposing them to infection, will tend to depress their physical condition and reduce them to the category of the malnourished. The number living in overcrowded conditions must not, of course, be added to the number who are not properly fed in arriving at the total number of children who live in conditions unfavourable to proper growth and

development; that would be to count the same children twice, since in nearly every case the child who lives in a house in which there are more than two people to a room will be a child who is already poorly fed. I should rather consider that overcrowding further weakens the children who suffer from malnutrition, and counteracts the efforts of society to help such children by the provision of free meals and milk. There must, too, be borderline cases of children who would grow satisfactorily and resist illness on the food which they are given, but who fail to do so because they cannot combat successfully the combination of indifferent feeding, bad air, and insufficient sunlight.

We must go to the 1931 Census Returns for the figures of overcrowding in England and Wales, and these figures are only approximately correct to-day, because since 1931 legislation has been passed to prevent the more extreme degrees of overcrowding. But the Act for the prevention of overcrowding was only drafted to touch the worst cases, and even where it has been fully implemented rehousing has not proceeded far enough to alter the 1931 figures appreciably. Also it must be remembered that the schools are still full of children born before the act was passed, who, even if their families have been moved lately, spent their earliest years in the conditions described in the census publications.

By the Census returns we find that there were in England and Wales in 1931:-

163,000	persons	living	at	a	density	of	4	persons	per	room.
566,000	"	"	"	"	"	"	3	"	"	"

Now these people come from the poorest strata of the population, the strata that has the largest number of children, and overcrowding is related to family size even more directly than nutrition. Slightly less than one quarter of the population consists of children under fourteen, so that we may safely assume that in 1931 40,000 children ~~living in such conditions~~

lived at a density of four or more persons to a room, and the probability is that a far larger number did so. Forty thousand children living in conditions like these is a social evil which can hardly be contemplated with complacency. And if legislation has by now caused the people who were living in this bestial manner to be rehoused, there remain to be considered the 566,000 who were living at a density of three or more people to a room, a number which will include at least 120,000 children living in a proximity to others which implies squalor, discomfort and ill-health. Housing in England and Wales has not yet been raised to a standard which forbids a density of three or more people to a room, although the overcrowding act comes into force to forbid people from living in rooms which do not allow a specified cubic space for each person.

A family may be living in rather more comfortable circumstances than three or more people to a room and yet be counted "substandard" by the not unduly idealistic criterion of the Census. According to the Census 3.9 per cent. of the families of England and Wales, or 6.9 per cent. of the population live in substandard housing conditions. There will be more than this proportion of children amongst the poverty stricken people who live in the worst housing conditions, who are many of them overcrowded because they have too many children and because the poorest class is the most prolific, but, to avoid all risk of exaggeration I will assume this proportion, and arrive at the conclusion that at least seven per cent. of the children under fourteen live in substandard housing conditions.

This figure of seven per cent. I take as representing the proportion of children in England and Wales who live in houses which make health impossible for all but those who are endowed with physical constitutions which enable them to withstand every onslaught; very few children have constitutions of this kind, for the young are particularly

susceptible to infection and succumb quickly to harsh conditions. The "iron" constitutions of adult life are usually founded upon a combination of sound inherited characters with a childhood spent in ideally healthy conditions. One of the ways in which poverty vetoes success is by placing a veto upon health. The seven children out of every hundred who live in houses which the census describes as sub-standard are unlikely to grow up with iron constitutions.

The seven per cent who live in unsuitable houses or rooms does not exhaust the number of children who live in an environment which is not conducive to health, for overcrowded, dark and insanitary living space is not the only way in which bad housing affects a child. A child needs to play out of doors for a large part of every day, and it is not good for him to play in dusty, draughty streets. I include, under the heading of housing that is unhealthy and unsuitable for a child, housing which denies him an open space near his home, preferably a grassy open space, where he can play. Even on the coldest days children will play out of doors if there is a suitable space for them, and they can be seen in the parks practising football, and playing various forms of tick and hide-and-seek. But on cold days one does not see them playing much in the streets except when they are on their way to or from school. If they cannot reach a park or fields they spend most of their spare time during the winter in their kitchens at home, kitchens which are over hot in the homes of those who are earning good wages and can afford the fuel, and which are miserably and cheerlessly cold in the homes of those who are unemployed or poorly paid. In these kitchens every one tends to get tired and cross, and the children playing about in them become a weariness, first to their elders and finally to themselves; irritable and tired parents end by trying to make the child do what is most unnatural and unhealthy for it, sit still and keep

quiet. Lack of exercise is one of the causes of malnutrition which Burt enumerates. It has, I think, two causes. One is the lack of pleasant opportunity for exercise which for most children means an outdoor space away from pavements and traffic; the other is a run down condition of health which makes a child disinclined for exercise and which starts a vicious circle of inactivity and lassitude.

Many children are deprived of a proper playground. For one thing many schools have not got a playground near at hand. Le Gros Clark (22) says that of 250 head teachers in the London area who were asked to give details of the schools under their care, 197 complained of inadequate or distant playing grounds. It appeared that ~~less than~~ only 14 per cent. of the playing grounds were ~~less than ten~~ minutes journey from the school, and over 61 per cent. were more than twenty minutes journey away; some schools were as far as two miles from a playground and forty-five minutes journey from the nearest park. Now the difficulty of reaching a suitable open space for the school is exaggerated for the individual child. School playgrounds are not always left open for the children to visit them out of school hours, so that town children when they are on their own are often restricted to playing in the parks if they do not play in the streets. The majority of London children live more than ten minutes walk from a park, and although ten minutes does not seem much to an adult it is a good deal to a child. We all know from revisiting the scenes of our childhood how distances which seemed to us vast when we were young shrink to Lilliputian proportions as we grow. The wood at the end of the garden which was once able to contain the adventures of Livingstone and Stanley is now seen to be a wretched copse of a dozen trees through which we can see our neighbour's hen-run. Even if town children are able to reach in ten minutes a place where they can play, they

do not as a rule go to them. This is partly because they are not encouraged to do these adventurous things by interested grown-ups, and partly because their mothers do not like them to play more than a few yards from their home. This is not necessarily a stupid line for the parent to take; ten minutes walk to the park will involve crossing roads, some of them perhaps busy roads, and the mother is not unreasonable in preferring to have the children round about the house. Segal and Burt show how little the children from slum homes wander to amuse themselves, and in the chapter on intelligence testing I have described the limited experience of children from poor districts who have most of them never been more than a quarter of a mile from their homes.

The streets are not the most hygienic of playgrounds. Miss Boyce (q) describes how she has seen children playing at weddings, throwing handfuls of dust from the gutter over the bride by way of confetti, and all of us who have walked in the streets of slums have seen infants wearing very few clothes sitting on doorsteps sucking things that they have picked up from the ground. But I sometimes suspect that dirt of this kind plays a very small part in causing ill-health, whereas poor air, I think, plays a large part. The air of a poor home has a dense, foetid smell which the social worker knows too well, and it is in an atmosphere of this kind that the children spend their time during cold or wet weather. On fine summer days they must play in the streets, and in weather like this, although the air of the country is delightful, the air of mean streets is soon exhausted and enervating. The children find it so, for one finds that when it is hot they sit about at home during the day, and that after seven o'clock when the sun is lower and it is cool is the time when these streets become alive with children shouting and chasing one another and playing all kinds of games. About ten o'clock the cheerful noise dies down, for then even the ones with the most unwise parents go

to bed.

This is not an evil which afflicts country children, or children who live in small towns, but there are enough children who live near the centres of large cities to make the matter one which should not be forgotten.

Another of the causes of malnutrition which is often connected with bad housing is lack of sleep. It is not the only cause, for parents are often much to blame for allowing their children to go to bed late, but bad housing conditions cause many children who have sensible parents and who go to bed at the proper time, to get insufficient sleep. One of the reasons for this is the necessity of sleeping more than one in a bed. This does no harm if two healthy children share a double bed, but that is not the way the poor sleep. The parents and the youngest child, or four children in a three foot six bed is usual. If one of the children is restless and has a cough he will keep the others awake. Often adults who go to bed late and get up early to work share beds with children, and cases have been recorded of children whose nerves were seriously affected because they shared rooms or beds with people whose different hours or inconsiderate behaviour led to frequent disturbances during the night. The writer knows of a head teacher who, when she was reproving a small boy for his frequent lateness, asked him at what time he went to bed. He replied that he could not go to bed before twelve, because he shared a bed with the lodger, who did not get up until then. A healthy adult can stand a great deal in the way of broken nights, but a child cannot, and he suffers severely if elder brothers or sisters come up late; if someone else gets up at eleven thirty to go on a midnight shift; if the one who came to bed at eleven gets up at six to go to work. Or he suffers if he shares a room with his parents and a teething baby, and the baby keeps the three of them awake for some hours every night.

Sleeping arrangements of this kind are not unusual, and often the bed itself is merely an improvised couch of some kind which makes proper relaxation impossible, and the bed-clothes old coats and dresses. The parents bought a fairly good bed when they married; when their first child is growing and the second child is born they cannot afford to buy another, instead they get at a secondhand shop for a few shillings a broken-sprunged couch which besides its cheapness has the advantage that it does not need a mattress. The couch is useful in the kitchen-living room during the day, and there the elder child sleeps on it during the night, unable to get peaceful, darkened sleep until every one else has gone to bed, wakened by the first movements to get food in the morning, and breathing the air which smells of cooking, clothes and humanity. If a census were taken of the number of people in England who do not sleep on beds I think the result would be surprising to all except those who are themselves slum dwellers and social workers who are used to visiting poor homes.

Uncomfortable sleeping quarters and restless companionship are not the only things through which bad housing and its attendant drawbacks rob children of sleep. The older houses of the slums are some of them verminous. The inhabitants cannot be blamed for this because the vermin may be a legacy from their predecessors, and the experience on housing estates is that when people are moved from dirty houses to clean ones, having all their belongings disinfected during the move, they do not recreate verminous conditions in their new homes. Once vermin have established themselves in poor property the housewife stands a poor chance of exterminating them. As fast as she kills them and scrubs them away reinforcements creep from the cracks in her walls, to take their place. If she allows them no lodging in her walls, adventurous pioneers frequently find their way through from the houses of her less scrupulous neighbours. Mothers

who are careful can keep their children's bodies free from lice, but they cannot prevent bugs from coming out of the walls to give them a restless nights.

When we compare the nights of the child of the well-to-do, sleeping from 8 p.m. to 7 a.m. in a well-aired bedroom, in a comfortable, solitary bed, covered by light, warm blankets, soothed by a last drink of milk, with the child of the very poor, sleeping on a makeshift bed which he must share with one of his siblings, wakened frequently by the movements of his elders or the restlessness of someone who is not well, covered by bedclothes whose pitiful inadequacy leads to the habit of shut windows, and who is stimulated by the drink of tea which was the last thing he took before going to bed; when we consider the details of this comparison we see clearly how poverty depresses the health of children in many ways besides through limiting their diet.

Poor clothing is also a way in which poverty affects adversely the health of children from poor homes. I put this last because I think it of least importance and I put it in the chapter on housing because I think that both are problems of providing warmth and air, and of not allowing one to be secured at the expense of the other.

I do not think that scanty clothing is in itself harmful to children, and I am sure that many of the children of the well-to-do are grossly over-clothed. Exposure to air and weather are in themselves excellent, and one has only to see the improvement in the health of the pupils at open-air schools to see that cold air, even if it is damp as well as cold, can only do children good. The writer worked for some years near an open air school and used to see the children going to and from it every day. The children came from the poorest homes in an eastern port, and to see them was in itself evidence of the correlation between ill-health and poverty. They came to school on days when an east wind was driving rain in from the north sea, dressed in old summer coats fastened across their chests with safety-pins

and under the coats was sometimes a jersey, but as often as not a flimsy frock. Their shoes, even in winter when part of the way was muddy, varied from gym shoes to the rubber boots which was what they really needed. The boys were in not much better case than the girls. It was noticeable that few of the children had mackintoshes or overcoats which would keep out the rain, and the staff of this school were constantly appealing for clothes so that they could keep the children warm. Compared with the pupils of this school the girls attending the Municipal High School in the next building appeared to be pampered darlings of fortune, as, indeed, they were.

But exposure to the weather in open air schools is in carefully controlled conditions, and the frail little starvelings who attend them and are condemned to sit all day with only a roof and a windscreen wall to protect them from the cold do so in circumstances in which cold is a friend rather than an enemy of the human system. They are exposed to the cold all day long with no violent changes of temperature; each child has a rug in which to wrap itself during lessons and has a meal and a rest lying down on a mattress in the middle of the day; each child is given a generous allowance of milk at school. Exposure to air and cold is an excellent thing for those who are well rested and well fed, but it is a different matter for those who must conserve their output of energy because they are on a short allowance of fuel. Watching the children of open-air schools one can see how in many cases their initial ill-health vanishes, as their carriage improves and colour comes into their cheeks.

Scanty clothing is quite a serious matter for children who must go out several times a day from an overheated kitchen or a stuffy, pipe-heated school into the cold streets. These variations make him liable to catch colds,

and pre-dispose him to receiving the germs with which his class mates are ready to present him. Also many children arrive at school with wet feet, and their feet stay wet throughout the day; nothing is so effective as this for pre-disposing a child to colds. Boots and shoes are always a problem for the poor. In some towns there are charitable organisations by which footwear is provided at a nominal cost for the needy, but this does not hold good everywhere, and Segal notes that "no boots" was frequently the reason given for the absence of his pupils in bad weather. I maintain that it is not so much the exposure to cold and damp through poor clothing which damages children's health, as the tendency to shut windows and lack of outdoor exercise to which poor clothing leads. On bleak days children who are not warmly dressed are reluctant to go out to play and prefer to stay by the fire at home; on wet days they do not go out for walks as middle class children do, because they have no mackintoshes and their mothers, not unreasonably, place a limit to the amount of steaming clothes that they are prepared to have hung up in the living room to dry. There is also a limit to the changes of clothes which poor households can provide. Ill-clad people do not like open windows, poor children ^{seldom} have much oxygen in their homes and at school ~~eh~~ teachers who arrive dressed in wool and tweeds after an egg and bacon breakfast hesitate to open windows when their pupils are not so well equipped to withstand the cold.

Shut windows are the easiest and the cheapest way of creating and preserving warmth. In large rooms the habit is not very damaging, but it is damaging where there are large families living in small rooms, and it is in homes like these that heat is grateful and precious and windows are least often opened. Despite lessons in hygiene given at the elementary schools one can walk for miles down poor

streets on winter nights without seeing a single bedroom window open. This habit is formed in the winter because shortage of bedding often makes it not a choice but a necessity, and the habit persists in many families throughout the summer. When luxuries and all but the bare minimum of furniture have been pawned or sold, a family raises money on the bedding. This is usually done in the summer when the bedding can be spared in the hope that luck will have turned by the autumn and that it will then be possible to redeem it or buy more. When November comes they find what they had always known in their less optimistic moments and what any sociologist could have told them, that life is more expensive and employment scarcer in November than it is in July. Sometimes the bedding is sold even during the winter because there is nothing else upon which they can raise a little extra money, and they think that they can make do by heaping their day clothes on themselves and huddling closer together in bed. When the writer did social work which involved visiting the homes of casual labourers in the poorest districts of Liverpool she found a large number of families whose bed-clothes consisted of their day clothes eked out with newspapers.

Newspapers are the night covering of only the poorest of the poor, and one must beware lest experience of the least fortunate should lead one to deduce a false average. I am not prepared to say that any but a small percentage of the children in the elementary schools sleep in conditions such as these, but one may assume that many children have chilly, wakeful nights, in overcrowded beds, behind shut windows, because they lack good warm bedding.

This, I think, completes the tale of the ways in which poverty damages the physique of a child. First I should place malnutrition, because if they are given an ideal diet most children can combat their other difficulties successfully. Second I should place bad housing, and bound up with bad housing are other evils such as lack of air, exercise and rest. Last I should place bad clothing. One of the misfortunes of poor children is that they seldom have one only of these environmental handicaps with which to contend, for the effects of poverty are cumulative, and usually all its results are present together, except where social legislation by the provision of free meals, or housing schemes, has intervened.

Forty per cent. of English children are not properly fed. Seven per cent. are very badly housed and many others are housed in surroundings which deny them light and playing space. Many are poorly clothed. In country districts the physical type is apparently unimpaired, perhaps because healthy, outdoor labour makes up for other deficiencies, but the physique of the townsman suffered during the eighteenth and nineteenth centuries a decline which the twentieth century has not yet eradicated. Stunted, ill-proportioned bodies, coarse pale skins, seamed faces and lank hair are so usual in industrial districts that one takes them for granted and assumes that comeliness and health are not a human heritage but have to be painfully fostered and acquired, and forget that a way of life which destroys good looks is a way of life which destroys good health.

Anecdotes are an unreliable foundation for opinion and source of information, but I will now repeat an anecdote, because it aptly illustrates my point. ~~It should be taken as an illustration, not as serious evidence.~~ On a voyage from Denmark I made the acquaintance of a Danish girl who was

coming to England to spend a year with an English family to learn the language. She was a cheerful equable girl, who showed no nervousness at the prospect of landing at Grimsby on a Sunday, unable to speak a word of English, and having to make a railway journey which involved making three changes to meet people who did not know when she was coming and who therefore could not meet her. She was going the same way as myself, and I took charge of her for the greater part of her journey. As we crossed the industrial north of England gloom and horror spread over her face. "How ugly" she said to me, "How terribly ugly. How can people live in places like this?" When I assured her that the people who lived in these towns were not barbarian troglodites and that when they got good wages they lived genial and happy lives, she shook her head and did not believe me. When I took her to the buffet at Leeds station she shrank a little from her neighbours, and whispered to me, "What is this place? Are all these people ill?" I had not noticed before that she was a fine, sturdy girl, because in Scandinavia she was merely normal, but when I looked at her amongst the travellers on Leeds station she did indeed make them appear wretched and puny.

Scandinavians visiting England often comment on the toll which industrialism has taken not only of the appearance of England, but also of the appearance of its inhabitants. They comment on the number of deformities which they see in the people in the streets, and deformities are usually the ~~the~~ relics of physical debility or disease. The mixed ancestry of the inhabitants of the British Isles may cause them to be shorter and darker than the Scandinavians, but it gives no excuse for limbs short in proportion to the body, for narrow and rounded shoulders, for dull complexions and decaying teeth. I believe that the physical inferiority which is noticed by the observer from abroad is not

established in the race, and could be eliminated in a generation of healthy life. The improvement which has taken place during the last fifty years in physique, presumably as a result of the improved standard of living and public care for the welfare of children, warrants this optimism.

When we consider the life of the child in the slum, its food, its bedroom, its home, its school, (unless it has the good fortune to attend one of the new, sunny elementary schools) and its playground, it is remarkable that the difference in stamina and appearance between the classes is not greater. The warm clothes and bed-clothes, the airy, quiet, darkened bedroom, the mid-day rest for the very young, the daily walk, the daily organised games at school, the annual holiday by the sea, the diet of milk, cereals, fruit and vegetables, when we compare this environment with that of the child from the slum it is evident that the failure of the child of the lowest economic classes to achieve distinction in the highest walks of life may be due to the physical handicaps which make it impossible for him to take advantage of the educational ladder, and that so long as poverty continues to bring with it these handicaps no proof exists that the poor are less capable than the rich of achieving distinction and success. The effects of the backward drag of poverty upon intellectual effort will be the subject of the next section.

Conclusion to Part 2

1. The Board of Education standard for assessing the nutritional condition of children is unsatisfactory because:-

1) It is based upon what is found to be "normal" in different districts, and varies with the personal standards of Medical Officers of Health.

2) It is limited to a certain extent by the amount of assistance which the public is prepared to give to necessitous children, and is concerned with discovering approximately ten per cent of the worst cases rather than with diagnosing all the cases of children who fail to attain their physiological maximum.

2. The best way to discover the number of children who suffer from malnutrition is to calculate the number who do not receive the B.M.A. standard A diet. This diet is a minimum; no claim is made that it is an optimum diet and makes possible optimum physical development. But the children who receive it can be counted, on a moderate standard, as adequately fed.

3. According to the samples of the Social Surveys, and the statistics collected by Orr and Kuczynski, about 40 per cent. of the children of England and Wales cannot receive the B.M.A. standard A. diet because their parents cannot spend enough on food to buy it. Of this 40 per cent. about half do not receive even the B.M.A. standard B. diet, which is a diet upon which children cannot maintain satisfactory growth and health.

4. The provision of free milk by Local Education Authorities is not enough, if it is given to the 11.4 per cent. of the children who come from the poorest homes, to

raise their diet to the B.M.A. standard A. The provision of free meals will probably do so in a few cases. The provision of both milk and meals probably raises the 2.8 per cent. of elementary school children who receive this help to the A. standard.

The extra nourishment given by Local Education Authorities mitigates the evil of malnutrition, but it is on much too small a scale to cure it.

5. Experiments in giving extra nourishment to children who are receiving less than Orr's "optimum" show that improved diet is capable of increasing the rate of growth by at least 10 per cent. and suggest that the difference in height between the different socio-economic classes is due to the inferior diet of the poorer classes. As growth rate is an indication of health, it is probable that the inferior health of the poorer classes is also due to inferior nutrition.

6. According to the Census figures for overcrowding, 7 per cent. of the children of England and Wales live in housing conditions which are inimical to health. Poor housing conditions are in many cases aggravated by:-
1) Lack of open spaces near their homes where the children can play. 2) Poor sleeping conditions. 3) Poor clothing. These things tend to produce the debilitated condition known as "malnutrition".

P A R T I I I

THE EFFECT OF POVERTY UPON THE MENTAL ABILITY AND ACHIEVE-
MENT OF CHILDREN

THE EFFECTS OF POVERTY UPON THE MENTAL ABILITY AND ACHIEVEMENT OF CHILDREN

Poverty is a very serious evil in that it damages physical health, but if, as I believe, it is also an obstacle to mental development it is still more disastrous, for all human achievement is ultimately intellectual in character, and the well-being of the body is important chiefly because of its effect on the mind. The devitalising effects of indifferent health are tragic not so much for the suffering they cause, as for their destructive action upon mental and spiritual capacities.

It is true that history records instances of men of genius who have been afflicted by continuous ill-health, but these are mostly creative artists, men who occupy only one sphere of possible success, and to whom ordinary measures of capability cannot invariably be applied. Creative art often springs from some conflict or problem. It is the adjustment which the artist makes to the imperfections of life; illness may be a not entirely harmful ingredient in the mixture which produces a work of art. Moreover I can think of no physically delicate man of genius of the first rank who was not helped by comfortable nurture in his early life. Most of them had the added advantage of an independent income. In the past the child from a middle class home who was delicate or highly strung, had suitable tutors chosen for him, and to-day his school is chosen for the care which it undertakes to give to individual misfortunes or idiosyncracies. Books are placed in the child's hands. He is not subjected to the crude competition of having to learn more than other children in a given time if he is to win the right to an education beyond the age of fourteen; his body does not have undue demands made upon it and he can devote himself to his mind.

Even so I think that the work of most men of genius who have suffered from ill-health or deformity is in some way thwarted or stunted by it. Their victory is not complete although they have only one enemy to oppose them, it is not surprising that the child from a poor home who has many enemies is usually defeated by them. The child from a poor home has demands made upon both his body and his mind. I have described his background, and it is easy to imagine how little it would favour the development of the sensitive and ill-adjusted material of which some kinds of genius are made, or the development of the force, vitality and concentration upon a remote object which are necessary for any achievement of real value.

I do not think it is an accident that on Ellis's (30) list of English men of genius as many as seven of the thirty eight who were of humble origin were over six feet one inch tall. This is far above the average height for even the wealthiest social classes to-day. Ellis notes that at the time when he wrote the average height for Cambridge undergraduates was 5 feet 9 inches, and since height has increased during the last five hundred years these seven men were of very unusual stature. I give Ellis's words:-

"It is noteworthy that the men of genius who spring from the lower social classes tend to be abnormally tall. The lower social classes are always shorter on the average than the upper classes. But it is remarkable that among the very small number of British men of genius who have sprung from the lower social strata a considerable proportion are not only tall, but excessively tall. Of the seventeen British men of genius who are known to have been 6 feet 1 inch or over in height, at least seven sprang from the peasantry or a lower than middle class group..... It would appear that the organic impulse to intellectual

predominance..... tends in some degree to be associated with a corresponding energy in physical growth."

Ellis's explanation of the presence of physical and mental excellence in association with one another is similar to ^{that of Hollingworth} Thorndike, ~~when he~~ says that there appears to be a quality in the organism of the gifted which rejects imperfection. But there may be an ^{additional} ~~different~~ explanation. It may be that if the poor man is to succeed he must be endowed with unusual health and physical vitality and be fortunate in having an environment in early life which allows these potentialities to develop to their full capacity. The number of men of humble origin on Ellis's list is too small for any dogmatic conclusion to be reached from his data as to the relationship between physical health and success amongst the classes who have the hardest struggle to reach the ranks of success. Nor can we tell from his work whether health and ability are related for all classes of society, for his finding that the average height for men of genius is above the normal for the race may be explained by the fact that nearly all of them come from the taller and wealthier classes. But his finding that the humble men of genius tend to be taller than the men of genius of prosperous origin points to a correlation between success and health, in so far as height is an indication of health, and suggests that the correlation is higher for the indigent than it is for the prosperous.

Investigations amongst children in recent years have found a correlation between health and intelligence as judged both by test results and school work. That poverty, ill-health and growth are closely related is common knowledge, and what one would expect to find on a superficial examination of the probabilities. The question of how far intellectual ability and intellectual achievement are related to poverty and health is more complicated, and will remain so until we have more exact methods of measuring the aptitudes and performance of the

mind. But such data as exists suggests that as poverty and ill-health are correlated, so we find that ill-health and mental weakness, good health and high intelligence are correlated, and this together with experiments showing that mental power increases with the improved nutrition which gives better health, indicates that some of the apparent inferiority in mental capacity which we find amongst children from schools in poor districts, and which intelligence tests find in children whose parents follow ill-paid callings is due to physical debility rather than inherently poor mentality or the limitations of their experience.

Terman (106) found that the gifted Californian children whom he examined were superior in health to normal children. They were taller and heavier; they suffered from fewer of the most common defects, such as bad sight and hearing and adenoidal troubles; they suffered from headaches and 'general weakness' 38 per cent. less frequently than normal children, and they suffered from fewer nervous disorders. This last point is interesting as helping to dispel the common fallacy that unusual ability is found in conjunction with nervous instability. Nature does not appear to be concerned with justice. Besides having better health and better brains the gifted children of California were more popular in the playground and were more often chosen for positions of responsibility, and elsewhere Terman writes that they were good-tempered and in general showed good moral traits. So far as I can discover no student of education has found a different result on the subject of the health of the intelligent although there is some disagreement as to the superiority of the moral traits of the intelligent and it has been maintained that children of super-normal intelligence tend to be unsociable and egotistical. Hollingworth (46) found that gifted children chosen from a class had a

median height of 52.9" as compared with a height of 51.2" for the children at the bottom of the class, and more important, that they were heavier in proportion to their height than the duller children. This difference would have been exaggerated probably if age had been taken into account, for the clever children in a class tend to be younger than the duller ones; the variations in individual intellectual power are enormous, and the clever child who is pushed up into a form of his elders is more commonly found at the top of the mark list than at the bottom, and in nearly every form there are a few slow-witted children above the average age who have been placed in it only because their age made it unsuitable to keep them down in a lower form. Besides Terman and Hollingworth, Baker (2), Freeman (34), Woodrow (113) and Yates (116) have found a correlation between mental and physical efficiency. The fact may be taken as established, but the causes remain subject to doubt.

The inherent superiority of the organism which Hollingworth and Ellis mention may be in many cases the source of the vitality which drives forward both the mental and physical development of the child. Terman found that his gifted children had an average birth-weight $\frac{3}{4}$ lb above the normal, and although a favourable environment for the mother during pregnancy does affect the birth-weight I have shown in an earlier chapter that it only affects it very slightly. An average difference of $\frac{3}{4}$ lb. suggests that the able are inherently superior in physique to the dull.

We have seen that an inherently good physique can be damaged by adverse conditions in early life, and I think that the same is true of the mind. I think that the inherently excellent mind can have its achievement vetoed by either the purely mental effects of poverty, or by physical effects which diminish the power of prolonged or intense concentration.

Fatigue provides one of the commonest and strongest links between mental and physical inefficiency; fatigue is both a result of ill-health and a cause of it; it is also a cause of mental lassitude and the shrinkage of ambition into a search for easy comfort and routine. A poverty-stricken home is often an indirect cause of extreme fatigue for a child. Fatigue is a subtle affliction, for it is often a neurotic symptom, and neuroses which manifest themselves as tiredness, inability to concentrate for more than a short time, restlessness, a dislike of effort carried to pathological lengths, such neuroses, even in children, have not always an ascertainable basis of ill-health. The causes of neuroses are usually a combination of physical and mental misfortunes, but sometimes the causes are exclusively mental, sometimes exclusively physical, and the sciences of psychology are in too embryonic a state to be able to diagnose accurately in every case. There is, however, no doubt that many cases of nervous tiredness are due in the first place to a poor state of health, and in these cases the tiredness vanishes when health is restored. There are also many cases of tiredness which are not neurotic at all and which are simply the drowsiness and "laziness" which result from more energy being expended than the metabolism of the body can restore. In children of sound mental constitution it may take a long time before this kind of tiredness leads to neurotic symptoms, such as unreasoning fears, dislike of the society of other children, (nearly always a sign of inability to cope with the brutal, inconsiderate and competitive companionship of the young), horrors of, for instance, dirt, or of certain people, inability to keep the mind on the subject in hand, inability to sit still.

The child from a poor home is often called upon for a greater output of energy when he is at home than when

he is at school. Newspapers are often distributed by boys who get up very early and do their round before they go to school. The errand boys of smaller shops often do their work before and after school, and examples of this kind could easily be multiplied. But as a rule it is the girls who suffer most from over-work and who are many of them household drudges to such an extent that they have very little time for play out-of-doors. It is an instructive experience for a teacher in an elementary school to ask the girls in her class how many of them prepared the family ^{breakfast} before they came to school, and how many of them will get the family tea, wash up, and mind the baby when they get home in the evening. On Saturday mornings, when children of the middle class are playing in the garden or going for walks, the girl from the poor street is anxiously doing her own family's shopping, or, for a commission, doing the shopping of a neighbour. Some of the household drudgery which falls upon the girls is due to the laziness or incompetence of the mother, but not all of it. It is in the poorest homes with the most numerous children that the mother is forced to go out cleaning offices or to take in washing and it is on the elder girls of these families that the burden falls. It is particularly the girls under fourteen who suffer, because at that age they can get work, and, as Bockington has shown, once the elder children have begun to earn, the position of the family becomes easier.

Besides the work which many of them have to do, the life of a slum home is tiring on account of the lack of ease and comfort which I have described in the two previous chapters. Underfeeding is tiring. Restless nights in overcrowded, unaired bedrooms are tiring. Everything, in short, which lowers the vitality renders a person more liable to fatigue, and children, who have no accumulated reserves of strength and who are quicker in their reactions

to environment than adults, suffer more than their elders from adverse conditions.

When we come to consider the mental causes of neurosis we find that the child from the well-to-do family is as much exposed to danger as the child from a poor home during the earliest years, say from birth to five yearsold. The absence of other children in the family, over cherishing at first, and the shock when some of the devotion is transferred to a younger brother or sister; psychologists have written a great deal about the mental conflicts which situations of this kind sometimes cause, and the child from a poor home who is better supplied with brothers and sisters and whose parents are too preoccupied to develop dangerous emotional bonds or to take much notice of any of the children, stands a better chance of avoiding the psychological misfortunes of early childhood.

But considerations of this kind appear trivial and frivolous when we consider the kinds of mental strain to which the child of poor parents is exposed when he is a little older. He lives in an atmosphere which the middle class rightly, but cruelly, call sordid, meaning that he lives in a world where nothing is easy, generous, sunny and calm. Every penny is a matter of anxious thought, and disagreement about the spending of a few pence may cause bitter quarrels. A slight love of pleasure, a sociability, a liking for an occasional pint of beer or visit to a cinema, things which would add to the geniality of a household in easy circumstances, may reduce a family living near the poverty line to resentment and strife. There is constant anxiety, and the bickerings which anxiety breeds; the fear of unemployment hangs over many households, and fears of this kind poison every moment and every activity. Children from the middle classes are usually shielded from the cruder aspects of parental quarrels; a sensitive child realises that something is wrong when his parents disagree

and is deeply affected by the feeling that the gods have deserted heaven, but at least he is prevented from hearing expressions of hatred, foul language, and threats of violence. The child from a poor home hears all these things because of the crowded houses which mean that the parents have nowhere private in which to settle their differences, and because they have received little gentle or genteel training in restraint. Nothing is so shattering for a child as hearing his parents quarrel; it destroys his sense of security in a sphere in which security is essential for him, and the quarrels assume enormous proportions in his mind because he has not the experience to understand that stormy scenes may be the result of stress from external circumstances, and that the participants may be nevertheless deeply bound together.

Another psychological strain to which children from overcrowded homes are often exposed is a premature and disturbing half-knowledge of sexual matters. There is no simple and easy way of dealing with the sexual education of a child, for complete knowledge is no more the answer than complete ignorance. This is not because complete knowledge might not be an excellent thing; if it were attainable it might be excellent, but such speculation is academic, since complete knowledge for a child whose emotions are immature is impossible, and it is frightening for a child to see behaviour which has a strong emotional content beyond his comprehension. His alarm is increased and his imagination further excited by the fact that he is evidently not intended to have seen what happened. This leads to brooding, to morbid speculative tracks worn by the imagination, to a feeling of hatred or horror for his parents, whose behaviour probably seemed to him to be brutal and indecent. These childhood experiences do not, I believe, leave permanent scars and wreck adult life so often as those who study the case books of psychiatrists are

led to suppose. The evidence which comes into the hands of psychiatrists comes from people who have failed to recover and adjust themselves to a sane and calm view of the many aspects of human life. The child of the lower economic classes is fortunate in that he attains a full and normal experience of sex younger than the segregated boy and carefully protected girl of the middle classes, and with normal sexual experience the mental disturbance created by half-knowledge and repressed curiosity usually vanishes. But this happens as a rule beyond the school age, and if it happens during the school years it is seldom fortunate for the child concerned.

It may be asked how exactly this affects the present subject, how psychological strains of this kind prevent a child from doing well in school. The connection is in reality very close. On the one hand malnutrition renders a child more liable to anxiety neuroses, so that the child who is already handicapped is the one who suffers most from the psychological disadvantages of poverty; on the other psychological strain upsets his digestion and causes malnutrition. Even if his health is not impaired by the state of his mind his school work will inevitably suffer. The symptoms of his nervous strain and absorption in extra-school matters will sometimes take the form, or at any rate the appearance, of chronic fatigue, and will present itself to the teacher as a phlegmatic indifference to lessons and an absent-minded incompetence in dealing with school work which is indistinguishable from the effects of tiredness. Many children sit at their desks failing lamentably to take an interest in a Daffodil poetry book or "Life in the Chinese Rice Fields" because such things, which contain a natural interest for a child who is free, are remote to the point of absurdity to a child who has clouding his mind a vague and terrible dread of what will happen if his father

loses his job, or who is plotting the revenge he will one day take for an unjust and bitter phrase addressed by his father to his mother in a family quarrel, or who is obsessed by what is to him either an underworld nightmare or a source of delicious, guilty speculation.

Home anxieties or work such as shopping, delivering newspapers, washing up, or looking after a vigorous or fractious child demand an output of energy and will not be denied this tribute. Work in school is more easily evaded, and the teacher who makes demands as inexorable as those of nature upon a child's output of energy is, fortunately, rare. Most teachers take the child to the water, but, from either laziness or sympathy, do not beat it if it will not drink. Therefore the child who is tired sits in his desk in peaceful vacancy of mind. He gives no trouble to any one; his teachers say that he is a nice kid but not very bright. If he attends a school which selects promising children and coaches them for the Special Place examination he is not one of those chosen. If in his area all the children are entered for the Special Place examination he is unlikely to be successful. In nineteen cases out of twenty he may indeed be a child of very moderate intellectual power, but in the twentieth case society has committed an injustice.

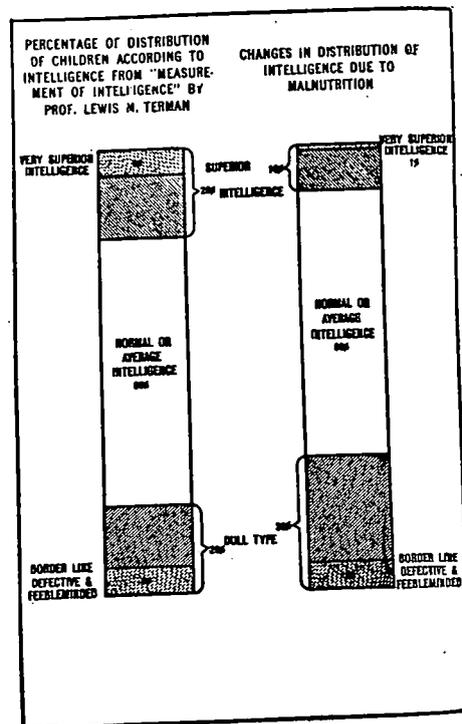
And if he had won his entrance to a secondary school, what then? The difficulties which are presented to a child from a poor home in a secondary school form the subject of another chapter, and here I will merely point out that the degree of fatigue which prevents a child from distinguishing himself at an elementary school may lead him to scholastic disgrace in a secondary school.

Educational psychologists have examined carefully the effects of fatigue upon the work of children, but the kind of fatigue which they have studied is what I should

call "short term" fatigue, the kind that comes from doing one task for a length of time that can be measured usually in minutes, and never more than one or two hours. The kind of fatigue which poverty induces in children is long term fatigue, the result of years of struggle against adverse conditions of life, and it is almost impossible to study it except together with the other physical concomitants of poverty. A case cited by Burt (15) illustrates the direct effect of rest upon the work of children who come from poor homes. Burt tells of a class of backward girls, half of whom were given daily extra coaching in arithmetic whilst the other half were given instead of coaching a daily rest in deck chairs. The half which was given the rest improved more rapidly than the half that was coached. From this we can judge the futility of improving the staffing and equipment of schools if we do not at the same time improve the ability of the children to profit from their teaching by maintaining the standard of their physique.

Blanton (5) studied German school children in 1919 in order to determine the effects of malnutrition upon mental ability, and his results are important although unfortunately they are not exact. One of the reasons for the inexactitude is that he compared the German children with Terman's normal expectancy of I.Q., and it is difficult to relate to one another results obtained from groups of different language, culture, and racial constituency; another reason is that he was unable to isolate the factor of malnutrition, for the German children had been exposed to nervous strain as well as to underfeeding, and the emotional instability which Blanton found to be common amongst them may have been due to emotional as much as to physiological causes. Nevertheless his results show a greater difference between the American and German children than can be explained by inaccuracies of the investigation, and I reproduce the table in which he shows the percentage

of children who fell within the different intelligence groups. His own comment on the results is that the less intelligent children were the ones who suffered most mentally from the three or four years of privation, but I find this hard to believe, both on an examination of his own tables, and on the experience of other investigators who have found that the clever child who is removed from a poor home to a good environment is the one who responds most to his new opportunities. Blanton shows that malnutrition and privation increased by one third the proportion of border-line, defective and feeble-minded children, and that it decreased by one half the proportion of those who had superior intelligence; further, he shows that the proportion which he classified as having very superior intelligence sank to one per cent amongst the German children as against a normal expectancy of six per cent. This seems to me to indicate that it is the most intelligent who are most sensitive to their environment, responding most quickly and fully to good conditions, and, conversely suffering the greatest deprivation when they are exposed to misfortune. The increase which he shows in the proportion of dull children as a result of war time conditions is serious, for dull children are a liability to society and are seldom satisfactory to themselves, but I admit that I am more concerned with shortened proportion of the very intelligent. The work of raising the subnormal from one of the gloomy categories of mental weakness to another is admirable, and, within its limits, useful, for every child who is raised to the ranks of the normal becomes a harmless passenger instead of a burden to the world, but the children who interest me are the ones of superior intelligence, for it is by their agency only that civilisation can be advanced, and they are the ones whose imprisonment within the narrow boundaries of ill-paid and unskilled occupations entails the greatest loss. In view of the present success of



From S. Blanton, "Changes in Distribution of Intelligence in relation to malnutrition."

Germany it would be unjustifiable to suggest that her war generation had grown up inefficient and devitalised, but we can say that the war generation has shown a hysterical willingness to accept leadership, and has denied the validity of the scrupulous intellectual and artistic standards upon which civilisation is built.

The effect of physical ill-health upon mental powers can be measured by much the same means as are used to prove the effects of nutrition upon growth, but unfortunately this has seldom been done, and whilst the most meticulous records have been taken of the weight and height of children receiving an addition to their diet in experimental conditions, all that is given to show their mental improvement is usually some vague statement such as:- "the teachers reported that the children who were receiving the extra food were brighter in class than the control group." There are, however, two exceptions to this vagueness. One is the report of the Milk Nutrition Committee of the National Institute for Research in Dairying to which I referred in connection with the physical effects of an improved diet. It is profitable to compare the table which I reproduce below showing the improvement in the children's intelligence according to the teachers' estimate which followed upon the addition of milk to the diet with the improvement shown in the physical condition of the same children. (Table on Page 168)

This table shows how closely physical improvement is followed by mental improvement. The teachers, it must be remembered, were not influenced by what they expected to find, for they were ignorant of the character of the biscuit, yet there is nothing wavering or inconclusive in their estimate that the children who were given milk became better at their school work.

Percentage Change in Proportion of Children assigned
to Teacher's categories 1 and 3 at 2nd, 3rd and 4th
Examinations as Compared with those at First Examination.

Examination	2		3		4	
	1	3	1	3	1	3
Boys						
Biscuits	2.06	0.00	2.88	-8.97	9.88	-13.79
$\frac{1}{2}$ Pint Milk	4.19	6.02	6.51	-2.41	15.81	-21.08
$\frac{2}{3}$ Pint Milk	3.80	-0.60	4.22	-10.71	8.44	-25.60
Girls						
Biscuits	0.00	2.88	-4.76	2.88	0.48	1.92
$\frac{1}{2}$ Pint Milk	0.51	-4.90	6.12	-8.39	11.22	-13.38
$\frac{2}{3}$ Pint Milk	5.50	-6.50	-6.88	-8.13	3.21	-14.63

The Summer Number of "Industrial Psychology", 1938, records an experiment on the physical and mental effects of an improved diet which was carried out by Seymour and Whitaker. (99) The experiment was carried out amongst a hundred six year old children from a Barking infant school who were below average intelligence and most of whom came from very poor homes. The children were carefully examined and their home conditions were investigated before the experiment was begun; they were graded A, B or C according to their intelligence, and it was found that their physical condition and their home conditions were apparently closely related to their intelligence. For instance, the A group had a higher average hand temperature and were many of them having porridge, or even egg and bacon for breakfast, whereas 60 per cent. of the C group were having unsatisfactory breakfasts of tea and bread and butter, or, more probably, bread and margarine.

The children were divided into two groups, equal so far as possible in intelligence, educational achievement,

age (6.6 years), and physical condition. The two groups were formed into a single class and taught by the same teacher, so that their circumstances were in everything alike. Fifty of the children were given each morning a breakfast of fruit-juice, porridge and cocoa, both made with milk, fish or eggs, and brown bread and butter. Light was thrown upon the scratch kind of meals which children have in poor homes by the fact that it was difficult during the first ten days of the experiment to persuade the children to sit down peacefully to a three course meal; they expected to eat walking about with pieces of bread and butter in their hands. Once they were used to it the children sat down with pleasure and concentration to enjoy a long meal. The experiment lasted for eight weeks, and by the end of it the experimental group had gained .96 lbs. in weight, whereas the control group had gained only .52 lbs. and the hand temperature of the experimental group (hand temperatures were taken twice daily, on the palms and finger tips) averaged 1° C. higher than that of the controls. Three days after the experiment was discontinued the hand temperatures of the two groups was the same. But we are at the moment chiefly concerned with the mental results of the experiment. As a mental output test the children were asked each day to cancel for three minutes all the letters O they could find in a printed sheet of 2,000 words. On the first day of this test the scores of the two groups were the same; from the first to the tenth day the experimental group gained slightly on the control group; after the tenth day the gain of the experimental group became much greater, but it is to be noticed that during the last days of the experiment their lead diminished. Does this show that the breakfast acted as a temporary stimulus only, or was it that the task became boring after seven weeks to active children who were feeling well and self assertive?

One often hears teachers comment on the greater docility and patience of children with low vitality. In any case the decrease was not large and might have been retrieved if the experiment had been continued.

The children were also given tests in English, poetry and arithmetic at the beginning and end of the experiment. In the tests at the beginning the two groups obtained nearly the same marks; in the tests at the end the results were as follows:-

In English,	Experimental Group	11 per cent	above	Control Group
In Poetry,	"	"	11½ "	" " " "
In Arithmetic	"	"	7 "	" " " "

One may speculate why the advance is greatest in poetry and least in arithmetic; it may be because in arithmetic past work conditions present work more than it does in learning by heart, and "poetry" means learning by heart for six year olds, or it may be that writing sentences and learning by heart demand more concentration and effort than the elementary stages of arithmetic. Whatever the causes for the subject differences these results are important and should be considered in conjunction with the differences in intelligence test results between the socio-economic classes. These children were living many of them in slum conditions; possibly lacking air and proper exercise, eating for the remaining meals of the day unsuitable food and drinking strong tea; some of them probably had suffered from illnesses such as measles which had damaged their health beyond what could be repaired by eight weeks of one good meal a day. Yet we find that eight weeks with a good meal each day improved their educational achievement by more than nine per cent. It is possible that we have here the explanation of Burt's remark that the bright scholar of a poor district may appear a dullard when he moves to a school in a wealthier district, and, since we know that educational achievement

and intelligence test results usually approximate to one another, we find in this experiment a reason for the test superiority of children from well-to-do homes.

The nine per cent. improvement should also be considered in connection with Valentine's study of the Special Place examinations. (109) He found that of 225 candidates 130 were within five marks of the pass line, 65 at or just above it, 65 at or just below it. If any of the 65 boys who fell just below the admission level came from poor homes we may suppose that good feeding for the eight weeks prior to the examination might have altered their careers;

It would seem superfluous at this date to argue that the mind and body are dependent upon the same sources for their energy and have their activity governed by the same laws were it not that many people in their unguarded moments assume that mental activity is in some mysterious way divorced from other physical processes and that mind has special attributes which enable it to conquer matter. There is a sense in which this is true; people can choose whether they will put their available energy at the service of their minds or their bodies, and courageous men have been known to exhaust their bodies in their devotion to an achievement of the mind; but the mind will function imperfectly if its supply of fuel is curtailed, and it will cease to function when the fuel is exhausted. It will not function properly if the chemical constituency of the nervous tissues is deranged, and it will never attain its potential capacity if the development of cerebral tissue is slowed down during childhood and adolescence. Tredgold (108) says:- "The essential basis of amentia (the state in which the mind has failed to attain normal development) is an imperfect or arrested development of the cerebral neurones, a fact which is now established beyond

doubt by careful microscopical observations conducted by competent observers."

It has been found that a Chinese coolie may have sufficient vitamin C to resist scurvy whilst he is resting, but that on the same diet he develops scurvy if he works in the mines. From this it appears that manual effort demands not merely energy producing foods, but also foods supplying needs which do not seem to be directly related to muscular output. Similarly mental work burns up the food values which are needed for the vital processes. The strain of mental work is admitted in the case of students and people who have to go through complicated intellectual processes, and there is no reason why as much should not be conceded to children whose school work may be as difficult for them as Einstein's calculations are for him. One cannot expect a child to work hard whose diet is sufficient for a negative standard of health if he idles at school, but who is on the edge of insufficient nutrition so that he suffers from a feeling of lassitude and becomes liable to ailments and illnesses if he works hard. One brief spurt of work will teach him that work destroys his sense of well-being and will leave him with a distaste for further effort which is based on bodily needs, just as the craving for food when one is hungry is based on bodily needs. Whipple (' ' ') comments that when he organised open-air classes for healthy children, not only was the attendance record raised, but also scholastic records improved and backward children became less backward as their health improved.

No one seriously disputes the unity of mind and body, and yet the state apparently acts on the assumption that the mind can be educated and developed apart from the body, for it gives educational opportunities generously, even if it sometimes gives them with a lack of discrimination but it allows the physical care of the child to lag so far

behind the mental care that many children are prevented by a lack of health and vitality from winning a place at the top of the educational ladder. We do not tinker at the problem of education, for the state recognises complete responsibility for the training of children whose parents are unable to pay for schooling, but we do tinker at the problem of health, for we allow it to remain an individual concern until the point is reached at which illness becomes immediately dangerous to life. It would be consistent and wise to extend the principle by which we maintain that no child who has a normal mind shall be denied through the poverty of his parents the education within the state system which he can win by his intelligence, and to maintain that no child shall be denied through parental poverty the health which he would develop in a good environment. We show an uneasy consciousness that the state ought to care for the health of children by the many schemes which we have created to help the unhealthy. There are milk supplies from clinics for infants who need it, open-air schools for the unhealthy, free milk and meals at school for children who qualify for it, hospitals and convalescent homes for the sick. We have reached the stage of realising that we must cure disease, but we have only begun to realise that we can and should prevent most of it, by a national health policy as positive and as complete in its scope as the national educational policy. The Peckham Health Centre (86) demonstrates in its results that proper medical attention alone can improve the standard of health beyond what is usually considered possible for the inhabitants of poor districts, and we can be certain that the standard of health would be raised still higher if good nutrition were added to good medical attention. The Peckham Health Centre shows also how much children are at the mercy of their physical sensations, since we find that

a child may have its record in school and playground changed from failure to success by the cure of minor ailments and adjustments. We may expect to find a proportionate improvement in the intellectual achievement of the children from the slums when they are given full health instead of the present shoddy physical standards which they accept for themselves, and which we are apt to accept for them, as inevitable.

Conclusions to Part III

1. Good health and good intelligence appear to be correlated.
2. Children from poor homes are more likely than children from prosperous homes to suffer from fatigue and neuroses which lower their vitality and distract their attention from school work.
3. The investigations of Blanton, of Seymour and Whitaker, and of the Milk Nutrition Committee of the National Institute for Research in Dairying, show that improved nutrition improves children's performance in school work, and improves their intelligence according to the estimate of their teachers.
4. There is therefore reason to believe that the apparent mental inferiority of children from poor homes may be due in part to their inferior nutrition and health.

PART IV

THE OPPORTUNITIES GIVEN BY THE STATE
EDUCATIONAL SYSTEM TO THE GIFTED CHILD
FROM A POOR HOME.

THE OPPORTUNITIES GIVEN BY THE STATE EDUCATIONAL SYSTEM
TO THE GIFTED CHILD FROM A POOR HOME.

I now propose to discuss the opportunities which the State educational system provides for children, and to consider how far the child who is educated at public expense has equal opportunities with the child whose parents pay for his education.

I shall, in dealing with this subject, confine myself to the Secondary schools, and dismiss briefly in a few paragraphs the opportunities which technical, commercial and central schools offer to their pupils. I dismiss them because these schools do not provide a ladder to the higher spheres of work and success; they merely provide a pair of steps by which their pupils can climb a few feet above the weakest of their contemporaries who are left behind in the elementary school. The commercial schools give a useful training for the less ambitious kinds of clerical work, but Leybourne and White (61) say that prospective employers who want a reliable clerk for whom they are prepared to pay good wages are more likely to ring up the local secondary school than the local College of Commerce to find someone to suit them. There is a widespread, and not entirely erroneous, belief that the School Certificate is a proof of good sense and a certain degree of literacy, so that the best clerical posts tend to go to the secondary school child. As for the Technical schools, they give a valuable training for engineering and other trades, and increase considerably the earning power of the boy who takes advantage of them. Occasionally their pupils get scholarships to local universities or university colleges. But it must be a rarity for a boy to travel by them to the

pages of "Who's Who", and when we examine Leybourne and White's table of the opportunities which result from the different types of education provided at public expense we find that the chance of obtaining white collar work of good standing hardly exists for the child who has not been to a secondary school.

The policy of the Hadow report, and, more recently of the Spens report, is to improve the status of manual and technical work and to destroy the monopoly of respect which white-collared employment at present enjoys. In this Hadowism has failed, and I am confident that the Spens policy if it is ever implemented, will also fail. Except in certain kinds of art, there is a strict limit to the skill and power of the hands, but there is no limit to the power and influence of the mind. The man who works with his hands reaches to further spheres, and can control and direct the work of many pairs of hands. The higher monetary reward given to the brain worker is recognition of this inescapable fact, and accounts for the preference of the able and ambitious for the desk rather than the bench. It is useless to attempt by legislation to check the operation of natural laws of this kind, and whilst it is right to improve the status, standard of living, and security of labour, it is vain to hope or expect that schools which give a training in manual dexterity or technique will cater for and attract the ablest children of the elementary schools.

The main line to success, therefore, runs by the secondary school, and in describing the opportunities which the secondary school gives to elementary school children I describe the only opportunities which most of them will have of reaching the more important and exacting human activities.

We find from the Board of Education statistics for 1938 that 12.99 per cent of elementary school children go to secondary schools, and that of these 45.1 pay no fees. The

income levels at which fees are demanded vary according to the policy of the local authority; this is one of the many ways in which luck intervenes in the career of a child from a poor home. A scale such as the one given on the next page, that used in the city of Hull, represents the kind of scale common amongst the more liberal authorities.

According to Leybourne and White it is usual for local authorities in England to give full remission of fees and maintenance grants where the household income is not more than £3. even if there is only one child in the family. Remission of fees, but no maintenance grant, is given to the only child of a family where income does not exceed £4. This is generous, but usually only 10/- is allowed for each dependent child in assessing the family needs, and as children tend to cost more than 10/-, the member of a large family is at a disadvantage.

We can see that the children who pay no fees come from working-class homes, and it might be argued that if nearly 6 per cent. of the children from such homes, and 45.1 per cent. of the pupils of Grant Aided secondary schools (the percentage of ex-elementary school pupils in Grant Aided secondary schools who pay no fees) are given a free secondary education, the way to success is thrown open to all those who have the ability to deserve it. But every teacher knows that the answer is not really so easy, and that the apparently simple pattern laid down to secure a just opportunity for able children is broken by many anomalies.

By the Special Place system the future of a child is decided when he is eleven years old; if he is ill on the day of the examination and cannot sit for it, his chance is lost forever; if he fails in the examination his future is limited; he is at the mercy of his mood,

Hull Fees for Secondary Schools

Annual Income	Fees Payable (guineas) where number of Dependent children is:				
	1	2	3	4	5
Under £208	-	-	-	-	-
£208 and under £225	3	-	-	-	-
£225 " " £250	4½	3	-	-	-
£250 " " £275	6	4½	3	-	-
£275 " " £300	7½	6	4½	3	
£300 " " £325	9	7½	6	4½	3
£325 " " £350	10½	9	7½	6	4½
£350 " " £375	12	10½	9	7½	6
£375 " " £400	13½	12	10½	9	7½
£400 " " £425	15	13½	12	10½	9
£425 " " £475	16½	15	13½	12	10½
£500 " " £550	18	16½	15	13½	12
£550 " " £600	19½	18	16½	15	13½
£600 and over	21	21	21	21	21

Maintenance allowances, Hull

Income	Annual Amount of allowance when age is:-				
	Under 14	14	15	16	17
I. Under £104	£4.	£10	£15	£18	£20
II. £104 & under £130	£4.	£8	£12	£14	£16
III. £130 " " £156	£3	£6	£10	£12	£14
IV. £156 " " £182	£2	£5	£8	£10	£12
V. £182 " " £195	£1	£3	£4	£8	£10

his health, his luck in questions, on those days, and children, who have not developed objective standards by which they can watch, judge and control themselves, are much more at the mercy of their temporary emotions than adults. The highest gifts are sometimes of slow development, and the man who is destined to be remarkable may not appear so when he is a shy little boy of eleven who does not shine at English and arithmetic, because he does not occupy his mind with what is presented to him by his teachers, but instead devotes himself to studying engines on the local railway, or drawing, or imagining adventures in strange lands. I do not wish to be unjust to the Special Place examination. I think that usually the cleverest children get through, and that cases such as the hypothetical one which I have just described are rare; but although they are rare they are important.

How satisfactory is the Special Place examination? The course of lives is decided by its siftings, and we must consider whether it succeeds in discovering the best 13 per cent of the candidates who sit for it. Even if it does this it will not necessarily extract the 13 per cent. inherently best brains, for there are the large numbers who fail to sit. In some areas all the children take the examination, or are at any rate subjected to a preliminary test for it held by their school, but in other areas only those sit whose parents are prepared for their children to go to a secondary school. Many criticisms are levelled at the examination. Teachers of science and mathematics complain that arithmetical facility is often found in minds that are incapable of the reasoning which their subjects require. English teachers complain that either the questions of the examination, or the formalistic character of English training at the elementary school, prevents the candidates from showing whether they have any powers of criticism, appreciation, or imagination. These complaints are probably just, and the reason for them may

be that 11⁺ is too young to discover the qualities which secondary school work demands. They are some of them qualities which develop when the child is a little older, and the solution might be to enlarge the size, improve the status, and deepen the curriculum of the elementary school and decide which children should go to the secondary school at the age of thirteen instead of eleven.

This is not enough to explain all the mistakes and inaccuracies of the Special Place examination. The examination cannot be blamed for the failure of the clever child who is handicapped by physical debility caused by the circumstances of poverty, but clever children who have maintained their health and vitality should be good enough at arithmetic and neat and accurate enough at English composition to get through; the child who deserves to get through and fails is usually the borderline case and his failure does not inflict a grave injustice. Valentine (109) has done a detailed study of the Special Place examination, and he points out how irresponsibly luck operates in the borderline cases, for the number of places is often limited, and the examination then becomes competitive in an extreme degree. I say in an extreme degree, for all examinations are in some degree competitive, since the standard must be ultimately created by the candidates themselves. One year the examiners may fail every entrant on the plea that none of them reach the requisite standard; another year every candidate may get distinction; but if the results over a number of years are analysed it becomes clear that a certain percentage of the best are given distinction and a certain proportion of the worst are failed. There is, however, in most examinations a certain latitude in any given year which allows the examiner to pass those whom he thinks deserve to pass; where the number of Special Places is limited there is no such latitude; the child who is to win a place must come within a certain distance of the top of the list.

Valentine found at one centre which he examined that

the distribution of marks for the borderline cases was as follows:-

Average Borderline Mark for Admission,,,,,.....	225
No. of boys at, or only just above this.	
	(225-229) 65
No. of boys at, or only just below this	
	(224-220) 65

There were, therefore, 130 boys who were within five marks of the admission level; when we consider the total possible marks, they were within one per cent of the admission level. Few of us would care to have our careers decided by a difference of one per cent in the results of any examination for which we have sat, above all one for which we sat at the age of eleven. It must have been luck which decided which of these boys should get in and which should be excluded. A similar result appears at another centre which he investigated. At this centre there was a careful and enlightened examination consisting of an intelligence test and oral questions as well as the usual arithmetic and English papers. The marks came to a total of three hundred and when they were reduced to percentages gave the following results:

Top Boy	1.	78	Per	Cent.
2nd "	2.	72	"	"
Etc.	3.	70	"	"
" "	4.	67	"	"
" "	5.			
" "	6.	66	"	"
" "	7.			
" "	8.			
" "	9.	64	"	"
" "	10.			
" "	11.			
" "	12.			
" "	13.	61	"	"
" "	14.			
" "	15.			
" "	16.	60	"	"
" "	17.			
" "	18.			
" "	19.	59	"	"
" "	20.			
" "	21.	58	"	"
" "	22.			
" "	23.	57	"	"

Valentine comments on the results:-

"The first eighteen boys, (with 60 per cent of the marks or over) are the boys who obtained free places. Notice how close they are, especially after the first five. After number 6 twelve boys are only separated by 3 per cent at the most. Number nineteen, only one per cent behind, has to pay fees, if he enters at all. We may be sure that, with another examination the next week, or even a remarking of the same papers by different examiners the just-fails might easily replace the just-passes.

I may add that one of the boys who only just scraped in with 60 per cent. proved the best of the lot five years later, being top of the school order, top of the School Certificate order, the only one of the year to gain Matriculation, and the only one a prefect."

We can test the reliability of the Special Place examination in finding the children who are best suited for secondary school work by comparing success at the entrance examination with success in later tests of school work. The object of the entrance examination is, presumably, to discover the children who can best cope with the secondary school curriculum. It does so very imperfectly, if we judge by Valentine's finding that there is a correlation of only 0.10 between entrance examination results and School Certificate results. This is a very low correlation; we can appreciate how low when we remember that intelligence test results have been known to correlate .8 with teachers' estimates of intelligence, and also, more significant still, because we are comparing tests roughly similar in character, the order of merit in school examinations at the end of the first year in a secondary school correlates with School Certificate results to the extent of 0.69. Valentine finds, too, that the correlation between school examination grading and School Certificate results remains practically unaltered through the child's first four years in the secondary school. Either the elementary and secondary schools train for different qualities, which makes the one no preparation for the other, or examinations, imperfect in any case as tests of ability, are so imperfect that they are practically useless as a test of the academic abilities of eleven year olds. Valentine gives interesting cases in which the entrance examination has proved lamentably lacking. He tells of a school at which, of the four boys who came out bottom in the entrance examination, three obtained their school

certificates and one Matriculated, whereas the top boy failed to get his School Certificate; at another school the two bottom boys obtained, one of them his Matriculation, the other his School Certificate; and he quotes the headmaster of yet another school as saying that the boy who was eighty-eighth in the list and only just won his entrance, proved the most brilliant boy of the year, matriculating at fifteen with three distinctions. The attainment of a School Certificate by a boy who only just scraped through his entrance becomes more significant when we learn that in the six large secondary schools from which Valentine got his information only seventy per cent of those who reach the School Certificate class succeed in getting the Certificate, and also that seventeen per cent, on account of bad work or bad reports, leave before they get so far up the school and another nine per cent leave early for economic or other reasons. We can reckon from this that one sixth of the entrants were unsuitable for secondary school work. When he worked out the percentage of the different entrance groups who had bad reports he found:-

Of the top $\frac{1}{3}$	at entrance	14.3%	had bad reports.
" " middle $\frac{1}{3}$	" "	19.1	" " "
" " bottom $\frac{1}{3}$	" "	19.2%	" " "

And he found that the following proportion of the three entrance groups passed the School Certificate Examination.

	Passed S.C. Ex. in four years	Passed S.C.Ex. in five years
Top Third at Entrance	25 out of 33	27 out of 33
Middle " " "	25 " " 32	28 " " 32
Bottom " " "	24 " " 33	31 " " 33

We can see from this that the difference between

the groups is significant.

It is possible that the fault lies with the School Certificate examination rather than with the entrance examination. It would be hard to find a discriminating educationalist who is satisfied with the School Certificate at any rate before the recent reforms; its results are certainly kinder to some kinds of mental ability than to others; a few good pupils fail through failing at one of the essential subjects. For this reason it is worth while to consider the total of marks obtained by the candidates, as well as the final result. When Valentine compared the marks awarded in the School Certificate to his three entrance groups he found that the boys of the middle group actually beat those of the top group. We may criticise the School Certificate, and feel, with reason, that it inflicts heavy shackles on the curriculum of secondary schools, but we cannot deny that ability to deal with languages, mathematics, science and literature, to the standard which it imposes is a valid test of general intellectual ability. On the evidence of Valentine we must condemn either the School Certificate or the entrance examinations as selecting with arbitrary carelessness the candidates for success. I think that whilst both examinations misjudge some candidates a better case can be made for the defence of the School Certificate.

The health of the candidates at the time of the examination and during the months preceding it must sometimes be a decisive factor. The experiment of Seymour and Whitaker, which I described earlier (page 225) shows that the children who were given extra nourishment improved their arithmetic and English by 9 per cent. When we consider this in connection with Valentine's table of entrance examination results it seems almost as if one would select much the same children if one offered a Special Place to those who had eggs for breakfast, and

denied it to those who had only bread and margarine.

Another factor which affects the chances of a secondary education for a child is the efficiency of the elementary school which he happens to attend. Some elementary schools which have ambitious and energetic head teachers coach their more promising pupils for the Special Place examination. The candidates are put into a special "Scholarship Class". They give them a good deal of written work and see that it is corrected carefully; or, although they are not supposed to do so, they give them arithmetic and English work to do at home. Other schools are resigned to being places of education from which for some mysterious reason no child proceeds to a secondary school.

Besides the coaching which is given to some children in school hours, many children have coaching provided for them out of school hours either through their parents or their school. In a class of seventy graduate students Valentine found that thirty-four had direct personal knowledge of coaching for the Special Place examination out of school hours, and comments that the proportion was particularly high in view of the fact that many members of the class had never been to an elementary school. It is superfluous to point out the premium which is put upon affluence if special coaching is given to some of the children. Special coaching can rarely be had for love.

The chances of a child may also depend upon the area in which his parents live. Not only are some areas served by much better elementary schools than others, some areas give a higher proportion of Special Places than others, and some give much more in the way of extra help which may enable a child to take up a Place which he has won. Some rural areas provide board and lodging during the term for pupils who live too far from the school to travel to it every day, but most authorities

do not do as much as this. Some provide travelling expenses, others do not. In the East Riding of Yorkshire the cost of one scholar for one year has amounted to as much as £70, whereas in the City of Hull the cost of a secondary school-child who pays no fees is £34. These variations in cost quickly reach the life of the child. In country areas sometimes a low ratio of scholarships is offered because of the expense of secondary education in a district of scattered population, and some depressed industrial areas whose rates are heavily burdened economise on their secondary schools, so that a number of children have their formal education cut short at fourteen who might have entered professions if their parents have lived elsewhere. There are others who refuse to sit for the examination, or refuse a Place which is offered to them, because their parents cannot face the expense of daily fares as well as the loss of the child's earning power from fourteen to sixteen. These children might have entered professions if their parents had lived elsewhere.

Refusal of a Special Place is nearly always due to economic causes. The value of the School Certificate as a qualification is universally recognised, and there is no reason why parents should not encourage their children to go to a Secondary School if they could do so without loss to themselves. It only needs a superficial examination of the cost of keeping a child at a secondary school to see that remission of fees and maintenance grants do not compensate for the expense which is involved. On paper it appears as if the cost of the child's education is carried by the public, but when one examines the matter closely one can see that the parents must shoulder part of the burden. This puts another hazard in the path of the child from a poor home; middle class parents are forced by the pressure of social opinion, which believes that education should be

continued until the age of sixteen or eighteen, to give their children a secondary education of some kind; children from working class homes depend upon having parents who are willing and able to forego their earnings and who will face a little extra expense on their account.

What are the expenses which fall upon the parents of a child at a secondary school? Until the child is fourteen the extra expense is not great, and would not force many parents to deny their children the privilege of a secondary education. It is true that Maintenance Grants are small for children who are under fourteen, usually less than £2. a year, and often consisting only of help in buying books, but authorities are sympathetic in giving grants where there is need for them, and headmasters and headmistresses are quick to take up the case of needy children. The chief loss at this age is that the child is deprived of the free milk and meals which he may have been receiving at his elementary school. The limitation of the free milk and meals scheme to the elementary school is a curious anomaly of the educational system. Is it a tacit recognition of the fact that needy children do not, as a rule reach the secondary school? I have never been able to understand why there has not been more agitation for the extension of the free milk and meals scheme to secondary schools, for although the poverty-stricken and ill-fed child is more of a rarity at the secondary school, his need, when he exists, is greater, for his work is more arduous and his life more complicated. The result of the limitation is that the parents must feed the child better than they did when he was at his primary school, or he is underfed, or the secondary school itself, if it discovers his need, arranges for staff contributions or a quiet diversion of funds from some source to provide the child each day with school dinner or milk. It is wrong

that the need should be met by charity; charity does not always reach those who need it most, if they are too proud to show their necessity, and sensitive children dislike intensely being given favours by their school.

As for the Maintenance Grant, it is enough to dress the children in the school uniform if it is spent on clothes. There are of course a few families who spend the money on things which the household needs as soon as it is received. This is hard on the child, and it would probably be better if the Authority equipped the child instead of handing over the money, so that misappropriation of this kind became impossible.

Even before the age of fourteen the child at a secondary school finds that his life becomes more expensive in ways which are hard to define and which cannot be counted in terms of statistics. He has moved into a world which has a higher standard of living; he realises for the first time the poverty of his own parents now that he works and plays with boys who come from professional and business households, and from the better paid ranks of the weekly wage-earners. He finds that he needs equipment for sport; he finds that he is frequently asked for subscriptions which he is ashamed to say he cannot afford; his friends go to cinemas, sporting events, swimming baths; they buy sweets and ice-creams; they have hobbies such as stamp collecting which involve spending a little money; they are entertained to generous meals at one another's homes. He must cut himself off from most of these amusements if he is not to ask his parents for money which he knows they cannot afford. Many boys and girls with a happy gift for popularity survive these disadvantages and make friends despite them, but the others are often lonely and unhappy. The writer met a young woman who said that the happiest day of her life was when she left her secondary school; she said that she had

liked her work and liked the staff, and that the girls were always very kind and pleasant to her; the trouble was that she had no pocket-money so that she could not join in the pleasures of the others, and her home was so poor that she could not exchange the casual hospitality which was the custom of the school. She was always out of things, and soon came to feel morbidly miserable about it.

This girl did not come from a wealthy area in which one might expect the child from a poor home to be unusual and solitary; she came from a port which contains a large number of unemployed and has a high ratio of its inhabitants "on the rates". Her story points to two conclusions. One is that few children from poor homes reach a secondary school; the other is that life at a secondary school is either expensive or unhappy for a child who is unable to deny its human, sociable instincts. Wise parents are aware that this may entail strain for a child. The writer knows of an intelligent child whose parents are ambitious for her and anxious that she should go to the local Grammar School, but, they say, if she does not win a Special Place she will not be able to go, because they could not both pay fees and give her pocket money; they do not want her to be unhappy and conscious of financial inferiority in order that she may end as a clerk instead of a shop-girl. This child has no brothers or sisters; if she had she would have no chance of the secondary school whether she won a Special Place or not.

Parents are not the only people who understand the strain which life at a secondary school entails for a child from a poor home. One headmistress, known to the writer, has the task of selecting through personal interviews the borderline candidates for Special Places at her school. She says that she rejects those whom she finds come from very poor homes, not because she has a prejudice against children from poor homes, but because she thinks that the secondary school life is too much for children who have to deal with the drawbacks

of poverty and who are not clever enough to find compensation for their difficulties in success at work. Her policy may be sound, but the occasional mistakes of the entrance examination make it possible that this discrimination against girls from poor homes may occasionally exclude a highly gifted candidate.

We see that even for children who are still under fourteen years old the secondary school means extra expense in the way of pocket-money and food, and possibly in equipment and fares, but it is when a child is more than fourteen that the financial effort of keeping him there begins to be serious. It is true that the average value of Maintenance Grants is higher for the older child; their average value for all secondary school children is about £6, and for children who come from especially poor homes, or who are doing sixth form work the yearly grant is often much higher than this. But a grant of ten or fifteen pounds a year is not much to parents who know that the child could earn 12/6 a week in the labour market. Twelve and six is, according to Leybourne and White, the average wage of juvenile labour. Even in depressed times and depressed districts there is a demand for blind-alley work which commands this wage. Twelve and six a week makes a large difference to the unit income of a family. It would raise a family of four from Orr's Group 1 to Group 2, would increase its food expenditure by two shillings per head per week, and raise it from the class of the seriously mal-nourished to that of the class which suffers from a comparatively mild degree of malnutrition. Bockington (7) has shown that the families which are shortest of food are those which have several children at school and whose eldest children have not yet begun to earn. These hungry years are prolonged if the eldest child goes to

a secondary school, and the child himself, besides being unable to satisfy fully his own voracious appetite, knows that his younger brothers and sisters are hungry on his account. A child may (very rarely) receive a Grant of as much as £20; his family still sacrifice £12 a year by keeping him at school. We must believe that many families cannot or will not contemplate such a sacrifice, and that this prevents many children from taking the Special Place examination, others from accepting the places they have won, and others from completing the School Certificate course at their secondary school.

We find a curious situation by which both poverty and prosperity may keep children out of the secondary schools. Lady Simon, writing in "Education" September 1936, says that 20 per cent. of Manchester school children refuse the Special Places they are offered. She ascribes this to the amount of poverty in the city and the depressed state of the cotton industry. On the other hand Lindsay (62) writing of Bradford at a time when the woollen industry flourished, shows that 60 per cent. of the children failed to take up their Special Places, probably because of the excellent wages which children could earn in the mills. One may not be very sorry for the children who are beguiled from following their ambitions by the prospect of immediate wealth, but we may nevertheless count some of these children as casualties of a society which penalises children and the families of children, who prefer education and a wider future to a regular income. Tawney (105) says that industry draws the more intelligent because employers, like the schools, need the best, and one cannot expect a child of fourteen to be certain of his vocation and ideas for his future.

No figures are published of the numbers of children who fail to take the Special Place examination on

account of poverty, or who fail on account of poverty to take up the Special Places they have won; nor are any figures available which give the number of children in England and Wales who fail on account of poverty to stay four years at their secondary schools. The headmasters who supplied Valentine with his figures said that 9 per cent. of their pupils left on account of poverty and other causes, and that 17 per cent. left on account of unsatisfactory work; it is impossible from this to tell how many really left because of poverty. Some parents will plead poverty when they see an opportunity of work for a child; others are ashamed of revealing their necessity and invent some other reason when they ask to be released from their contract with the Education Authority. Some of those who left on account of unsatisfactory work may have left really on account of their poverty, for failure at school work is often a result of poverty.

Apart from the adverse effects of poverty upon health and vitality, life in a very poor home makes school work difficult. There is no sitting room. The child must do his homework on his knee in the kitchen-living-room with his young brothers and sisters playing round him. In the poorest homes he may be spared the radio, but very few secondary school children come from homes as poor as this, so that there may be a second-rate, raucous wireless pouring out a stream of news, jokes, jazz and information. If he wants to work at a table he must snatch the intervals when no one is having tea and spread his books amongst the crumbs of the family meals. His parents may be very proud of him and extremely anxious that he should do well, but they either do not understand the necessary conditions for scholastic work, or they cannot create them. He may be able, if he is clever and determined, to win his

School Certificate in these circumstance; if he is to win his Higher Certificate he must be remarkably tough and persistent as well as remarkably clever. If he is to win a university scholarship he must have, besides his intellectual abilities, heroic qualities of character. The difficulties which beset the secondary school child from a slum home are illustrated by the following case. A clever girl from an extremely poor home was a complete failure at the secondary school to which she won a Special Place. She was so dirty that the parents of the other girls complained of her; her work was messy, careless and scamped; she was frequently absent; she was deceitful. Finally she was caught pilfering from coat-pockets in the cloakroom, and the headmistress considered asking to have her withdrawn from the school. At this point the case came into the hands of Liverpool Personal Service Society, and the story takes a turn like a novelette. Through the agency of a wealthy woman a foster home was found for her which could provide her with the ordinary care and amenities. She became clean and cheerful; she did good work and obtained a good job when she left. Life is seldom like a novelette, and for this girl, who was given help far beyond that provided by the State or the Corporation of Liverpool, and who was thereby enabled to step into a higher strata of civilisation and monetary reward, there must be hundred of boys and girls who never achieve the simple standards of future success of which at one time they had hopes, and who remain in the ranks of the ill-paid because they are ill-trained.

If 12.99 of elementary school children proceed to a secondary school, does the state system of education provide enough places in the secondary schools to prevent wastage of ability? Gray and Moshinsky have dealt in extreme detail with the subject of the proportion of able

children born into the fee-paying classes and the elementary school classes, and have estimated the wastage incurred through the denial of higher education to children whose parents cannot pay for it. They accept intelligence tests results as an indication of the relative ability of the different economic classes, and, on the findings of intelligence tests, conclude that the wealthier classes produce a higher proportion of able children than the poorer classes. Nevertheless they find that the largest number of intelligent children is contributed by the class of the population that can pay no fees, for by their computations 84.4 per cent. of the country's total number of children with high ability come from the classes that do not pay fees. I reproduce tables of theirs which show that even if it is true that the wealthier classes have abler children than the poorer classes, the opportunities of further education for the able children of the poor are so much smaller that much of their ability must be wasted. (For details of classification of social categories see page 82.)

Percentage Contribution of Each Social Category to Total
Number with Ability

Category	I.B.	
	120 and over	130 and over
A. 1.	4.5	5.3
2.	1.7	1.8
3.	7.1	6.9
B.	5.4	6.2
C.	8.1	8.9
D.	15.9	17.7
E. 1.	30.2	28.4
2.	15.1	14.0
3.	3.8	3.0
4. Total Manual Workers	49.2	45.4
F.	8.2	7.6

of Higher Education

Numbers with Ability and Opportunity, as percentages of
all with ability in each social category.

Social Category	I.B.	
	120	130
A. 1	100.0	100.0
2.	29.2	38.8
3.	29.9	39.2
B.	94.0	95.3
C.	66.5	75.4
D.	48.3	56.2
E.1	31.6	45.5
2	23.2	34.0
3.	25.3	46.3
F.	43.6	57.4

Numbers with ability and opportunity of higher education
as percentages of total numbers in each social category

Social Category	I.B.	I.B.
	120 and over	130 and over
A.1	48.8	36.7
2	7.3	6.9
3	8.4	6.9
B.	54.2	40.6
C.	27.0	21.5
D.	20.0	16.7
E.1	7.5	6.5
2	3.8	3.3
3	6.6	6.2
F	7.8	6.2

Gray and Moshinsky found that half the able children taking an I.B. of 120 as indicating ability, are the offspring of manual labourers, and that only 25.3 per cent. of the able children of manual labourers went to a secondary school. According to these figures 37 per cent. of the ability in the country is wasted, but if we take an I.B. of 130 as representing high ability the wastage is much less. As one would expect, the children with the highest ability tend to win their way to a secondary school. The word "wasted" used in this sense needs qualification. I sometimes find myself writing as if there were a kind of uselessness about the humbler spheres of work. I must insist that it is only a misfortune for a child to enter the ranks of the manual labourers in so far as the wage of a manual labourer does not enable him to lead a civilised life, and in so far as the child is capable of doing work which demands high gifts. There must be dustmen and milk-roundsmen as well as surgeons and ship-designers. The problem is to grade people in their tasks according to their abilities.

If we approach the matter from another angle we find that the opportunities provided by the state match better than Gray and Moshinsky reckon; the proportion of elementary school children who go to a secondary school has increased since 1933. 12.99 elementary school children go to a secondary school. Gray and Moshinsky say that 13.1 of the children of manual labourers possess a high degree of ability. The disparity between the figures is very small, but the manual labourers are the poorest of the classes whose children go to elementary school. It would be more just to assume that the 6 per cent. who pay no fees represent the able children of the manual workers who reach the secondary school, so that more than half of them are denied the rights which belong to their ability. But intelligence tests flatter children who have the experience and training provided by a good

environment. Possibly because of the adverse effect of poverty upon test scores, the real proportion of able children of manual labourers is higher than 13.1, although Gray and Moshinsky did not adjust the American test which they used to English conditions, and English children obtained unduly high scores by it. Then too we have seen how many accidents can intervene to prevent the child from a poor home from reaching the secondary school. It is probable that it is not ability alone which decides whether the child of the manual labourer shall go to a secondary school, but ability plus the willingness of the parents to make considerable sacrifices for his sake. Even if the numbers of able children of the poorest class matched exactly the numbers of those who received further education they would provide another example of the average working out justly without securing justice for the individual. Poverty, through its effects upon children's health, through the adverse circumstances for school work which it creates in their homes, and through the need for their earnings which it imposes upon their families, limits in practice the privilege of secondary education to the children of the better paid wage-earners and to children of members of the middle class. Children from very poor homes are occasionally found in secondary schools, but they are rare enough to be counted as exceptions to the general rule.

2. The Opportunities Given to Children by Grant Aided

Secondary Schools

Do the children who attend Grant Aided secondary schools obtain the best education which can be found in Great Britain? By the "best" education I mean an education which develops their gifts, which enables them to compete on favourable terms in important examinations, and

which by honestly earned prestige helps rather than hinders them when they apply for important posts. I think that the answer is that they do not.

In this section I shall say some hard things about the secondary schools run by Local Education Authorities, but it must be understood that there are many schools of which none of my criticisms are true. Some of the secondary schools run by the L.C.C. and a few scattered throughout the country, give an excellent education and educate their pupils as well as any but the best of the public schools. And at their worst the secondary schools are better than the private schools and the worst of the "Public" schools to which some misguided parents send their daughters, and a smaller number of misguided parents send their sons. The secondary schools are most of them efficient and businesslike; they get creditable examination results; they represent a democratic advance on the past by allowing a few children from poor homes to percolate through them to responsible work or to the universities. In forty years they have accomplished a great deal, so much that we are apt to forget how far they fall short of the ideal in the cultural and scientific training ~~the~~ which they give, and how far they fall short of the educational standards of the best of the "Public" schools.

I shall also say some hard things about the staff of secondary schools which are controlled by L.E.A.S. There are of course many men and women teaching in these secondary schools of whom none of my criticisms are true. In the best schools there are very few teachers of whom they are true.

The Grant Aided secondary schools suffer from the confused purpose of their origin. Leybourne and White say that they were founded to supply the skilled clerical labour which demands a higher general education than an

elementary school followed by a course of vocational training can give. The Grant-Aided secondary schools nearly all of them fulfil this purpose admirably. They are factories of neatness, accurate mental reproduction and obedience. They give a perfect training for the lower grades of the civil service and the business world. But this is not their admitted purpose, nor their only one. Combined with their utilitarian character is the ideal of the "Public" school; the "Public" school idea in education has coloured all efforts at secondary education in the British Isles; this has not been in all ways bad; it is perhaps better that the secondary schools should stress the value of individual judgement in intellectual matters and the virtues of leadership as the "Public" schools understand and teach them, than that they should be content with the creation of efficient subordinates as a justification for their existence. Occasionally the ideal ceases to be a pathetic convention and through the influence of a gifted head-master or headmistress becomes a reality. I myself have taught in girls' schools of both kinds, boarding schools catering for the comparatively wealthy, and secondary schools under local authorities, and I have found the difference in the attitude of the girls remarkable. Masters with whom I have discussed the matter say that they have found the same difference in parallel schools for boys. In the first type of school the children were taught to think, to talk, to form opinions, to develop personal tastes, with the result that when they reached the sixth form they were willing and anxious to discuss such subjects as "Is there a God?" or "Is the Institution of Marriage a Mistake?" The secondary schoolgirls I have taught would have been paralysed by subjects which demanded such a degree of social and philosophic criticism. The girls in the boarding school had been trained to the mental privileges of leaders, the

girls of the county or municipal secondary school to the conventions of obedience. For the other side it should be said that whilst the public secondary schools have failed lamentably to reproduce the virtues of the "Public" schools, they have failed also to reproduce most of their vices. There is little bullying or cruelty at them. They do not worship athleticism.

It is not difficult to trace the reasons for the inferiority of the public secondary schools. Firstly the "Public" schools are better staffed, and therefore they can give better teaching. They are better staffed numerically. Gray and Glass (40) say that "Public" boarding schools have a full time teacher to every fourteen boys; county secondary schools have one full time teacher to every twenty-three boys. This will have a great effect upon the standard of the teaching; large classes discourage the teacher from setting much written work, and they discourage him from marking written work with great conscientiousness; in scientific subjects which involve practical work a large class forces the teacher to omit many experiments, for many experiments are impossible unless the teacher can keep a strict watch upon each child. And large classes prevent the teacher from paying much attention to the varying needs and idiosyncracies of his individual pupils. If the "Public" school boy is taught in classes only two-thirds the size of the country secondary school classes he must be much better taught, unless his teachers are more casual and lazy than those employed by local authorities. This is unlikely to be so. One of the drawbacks of the public secondary school is that the staff have little incentive to enthusiasm and initiative in their work; laziness and incompetence are the last faults for which they are ever dismissed; they are in the protected position of

civil servants, they grow old in a routine which does not compel them to continue to learn, and they tend to drift into complacent idleness or hack assiduity over unimportant details. They become kind, pettifogging and intellectually useless, and fall into the habit of mind which judges children chiefly by the punctuality with which they give in their work, and their lack of aberrations from conventional behaviour. The headmasters and mistresses of the public secondary schools may deplore the uninspiring teaching of their staffs, but it is a fault which they can often do little to cure, for inspiration and enthusiasm cannot be produced to order, and whilst they have enormous power over the organisation of the schools, they have little power over the lives of the members of their staffs. The heads of "Public" schools have the extra incentive that their work is, in a discreet and aristocratic way, competitive. If their school does not maintain its reputation it may fail, a fate which cannot befall the school catering for Special Place winners under a public authority except in extraordinary circumstances. Then too the head of a "Public" school has immense influence over his staff. He can secure their resignation without any issue so crude as dismissal being brought into the open; he can give or withhold such rewards as housemasterships; the fact that most of the "Public" schools are boarding schools in itself puts the staff more at the mercy of the school and forces them to make the school a much larger part of their lives.

Another reason for the better staffing of the "Public" schools is that they offer better opportunities to ambitious men. The posts at the top of the "Public" school world are better paid and carry with them more influence. Also the man who is an enthusiast for teaching will find in the better "Public" schools the best possible

conditions for his work. He will find excellent laboratories, libraries, and equipment such as cinemas, gramophone records, epidiascopes. They have fine buildings and pleasing surroundings. The home background of their pupils enables the clever ones to take full advantage of their teaching. And the fact that the ablest men tend to prefer the "Public" schools has a cumulative effect. The presence of good scholars at the "Public" schools attracts to them other scholars who know that they will find the atmosphere of the staff-room more congenial than that of a school under a local authority. That the men with the best degrees do prefer the "Public" schools is shown by Glass and Gray when they found that 75 per cent. of the full-time teaching staff of the "Public" schools were graduates of Oxford or Cambridge, as compared with 21 per cent in the case of the other secondary schools. Since Oxford and Cambridge degrees are generally recognised as superior to other degrees I think we are justified in assuming that graduates of these universities tend to have first choice of posts, so that their presence in the "Public" schools indicates a preference for the "Public" schools.

The difference between the staffing of the two types of secondary school does not work in the same way for boys' and girls' schools, and it is probable that the difference in standard is greater in the case of boys' schools than in girls'. A larger proportion of able women than men teach, because teaching is one of the few professions open to women. Also, and this I think is the more important point, life at one of the "Public" schools holds fewer attractions for women than it does for men. Male institutions are not so restricted in their atmosphere as female ones, and the man has his family as a resource when the school presses heavily upon him; the woman, shut up in a homosexual community in the heart of the country,

finds her life intolerable if she has enough character, balance, intelligence and personality to be of much use to the girls she teaches. Women, unlike men, tend to prefer the humbler day schools to the "best" boarding schools. The writer found as the result of questioning groups of Oxford and Cambridge women undergraduates that 86 per cent. would rather teach in an L.C.C. secondary school than in one of the best of the girls' boarding schools. Nevertheless I think that the expensive boarding schools for girls get better teaching than girls in the day schools. For one thing there is constant pressure in the boarding schools to induce the staff to give the whole of their lives to the girls. Debating Societies, Dramatics, Musical activities, are good for the girls, if they are an infliction to the staff, and there are a number of women who, for lack of other outlets, do devote all the energies of their waking hours, except those which are given to healthy outdoor exercise, to the education of their pupils. For another, women appear to feel the physical strain of teaching more than men do, and the young woman who is faced with the large classes and heavy time-table of a democratic secondary school learns that she must compromise on the teaching ideals of the Training Department or wear herself out in a few years. Mechanical work and mechanical methods of keeping discipline are often the solution of those who decide on self-preservation. The highly gifted teacher who finds delight in canalising the obstreperous energies of the young does not discover the problem. In a vocation work and recreation approximate to one another, but a profession which contains thousands of women can only contain a small proportion who find their profession a vocation. The strenuousness of life in large schools in large towns has an adverse effect upon teaching standards.

The inferior staffing of the public secondary

school is not the only cause of the mediocre character of the education they give. The staff are in the hands of the Higher Education Committees of their areas, and of the parents of the children who, in their capacity of ratepayers, can interfere in the policy of the schools. Membership of a Higher Education Committee does not demand as a qualification either a high degree of education or any particular interest in it. A man or woman who becomes a City Councillor or a District Councillor is often drafted on to sub-committees in rather a hap-hazard manner, and membership of this committee or that is often more a matter of local politics than a grasp of the branch of administration concerned. Yet when these people are on the Higher Education Committee they use their vote if not their voice to decide the policy of the schools and the appointments to their staffs. The councillor represents the ratepayers, most of them people who have themselves received only a rudimentary education, and who are therefore at the mercy of suspicion and prejudice. If the school attempts to teach the children about anything which they were not taught themselves the vocal section of them are liable to write indignant letters complaining that the school, instead of fulfilling its proper function of coaching for the School Certificate, is teaching the children to be atheists or Roman Catholics, or Christian Scientists, or Fascists or Communists, or Internationalists or Jingoists. Trouble awaits the teacher who says anything more controversial and interesting than that the Battle of Hastings was fought in 1066. The difficulty is one which besets chiefly the teacher of history and English, but it also threatens the biologist who does not halt when he gets down to the waist in dealing with human subject matter.

The indifference of local authorities to

intellectual standards is shown in the present war by the fact that some of them have dismissed teachers who have expressed conscientious objections to fighting, despite the Board of Education's recommendation that teachers should not be dismissed for their opinions unless they sought to influence their pupils unduly, and despite the government's advice that the ordinary governmental machinery was sufficient for dealing justly with conscientious objectors. It raises a difficult problem. On the one hand I should oppose as a matter of principle any attempt to limit local initiative and ^{extend the} authority of the central government. On the other hand I am convinced that secondary schools would be guided by a more enlightened policy if they were more closely controlled by the Board of Education.

Teachers in all types of schools are, of course, exposed to the danger of attack for expressing unpopular opinions, but the danger becomes progressively greater as one descends the intellectual and educational scale, for education is the great enemy of taboo, the only creator of a world in which anything may be said which is honestly thought. The University Professor may be reprovved if he is suspected of disseminating an unpopular doctrine, but he can defend himself on the ground of intellectual liberty, and he lives in a world in which such a plea will be seriously considered. But the phrase "intellectual liberty" would mean about as much in English as it would in Greek to some members of Education Committees, especially of Committees in rural areas. The master at a "Public" school might find the plea of "intellectual liberty" insufficient for his defence, but his case is heard in a more enlightened world than that of the secondary school master, and he can say a great deal more to the boys he teaches because their fathers were themselves in their

youth allowed to discuss controversial religious, political and scientific issues. If they do not like their sons' opinions they are often prepared to tolerate them as intellectual wild oats. They would draw a very strong line if they found their sons being enticed into extreme political opinions, but short of this they would tolerate deviations from conventional opinion because many of them are men of trained intellects who believe in freedom, and others, who have no appreciation of intellectual values, have a dim apprehension that the system which creates leaders must allow liberty. Similarly, the mother who was educated at Cheltenham Ladies' College and Oxford will smile when her daughter announces that she has attacked the institution of marriage in a school discussion, whilst the mother who was a shop girl, and to whom marriage presented the only possible social and economic security as well as the affirmation of a personal relationship, and who has never read of real or imaginary societies in which human mating arrangements, were different, will be shocked.

It appears from this that the educational inferiority of the Grant Aided secondary schools is partly due to the inferiority of the pupils whom they teach. I do not refer to their inherent, biological inferiority, because I do not think that schools which contain a high proportion of children who are picked from the abler sections of the poorer classes are biologically inferior to the children who go to the best "Public" schools. I refer to the inferiority which results from their inferior social and cultural inheritance. The "Public" schools may be homes of barbarism and philistinism; it is possible for boys to spend four years at Eton or Harrow and acquire nothing except the correct manner, a knowledge of the correct sports, and a few correct friends. I know of one boy who, after four years at Harrow, had to have an expensive

tutor to teach him how to learn before he could struggle into Cambridge. One could multiply cases of this kind, but to do so would be to misrepresent the truth. The most exclusive of the "Public" boarding schools put no pressure upon a boy to make him learn. But if he wishes to learn he is given every help and encouragement to do so by the school. He will have men of scholarly attainments to teach him. His ambitions will cost his parents nothing which they cannot easily and gladly afford. If his home circle is not composed of intelligent, cultured and experienced men and women, he will meet at school and is likely to make friends with boys who come from the kind of world to which he himself aspires. His ambitions will not be looked upon as eccentricities, and the question of whether they are likely to give a sound financial return is not urgent. If he does not inherit in his home the cultural wealth of western Europe, he inherits access to the spheres in which it is perpetuated. The Grant-Aided secondary school starts at scratch. Its boys and its masters are on the average worse instructed than the boys and masters of the better "Public" boarding school, and the boys can learn little beyond what the masters can teach them.

In this section dealing with the relative value of the education given at democratic and aristocratic schools, I have dealt with the two extremes; on the one hand the expensive boarding school; on the other the school run by a local authority which gives 100 per cent. Special Places. There are of course all kinds of secondary schools between the two extremes. There is, to name one famous example, Christ's Hospital, which ranks as a "Public" school, but which takes the pick of the L.C.C. scholarship winners. It combines the virtues of democracy with excellent intellectual standards. It would be

possible, but libellous, to name schools which combine the vices of both systems. The "Public" schools at their worst teach a barbarous culture and are staffed by men whose qualifications are chiefly athletic. Some scholarship children are given a fine education at the expense of the public; some parents are foolish enough to pay a great deal of money for a very bad education. The general truth remains that the education which is won by the Special Place and Scholarship examination is not so good as that for which parents pay.

3. The Success of the Special Place Winner at the Secondary School

At an earlier stage in estimating the opportunities of children from poor homes I limited myself to the post-primary training given by the secondary school, and eliminated the technical and commercial schools because they rarely help their pupils to the higher ranks of success. At this later stage I propose, for the same reasons, to limit myself to discussing the opportunities which the secondary school gives to the child from a poor home of reaching a university. The School Certificate is the usual object of the child who enters the secondary school and I should discuss the importance of the School Certificate in a child's career but that the School Certificate is only a passport to white-collar work and does not by itself lead to the kind of success with which I am at present concerned; it does not take a child to a world in which he can exercise unusual gifts; it merely constitutes one of the obstacles which he must surmount on the way. It is difficult to estimate how serious an obstacle it is, for figures of the relative numbers of fee-payers and non-fee-payers who pass the examination

are not available. But it appears that in the year 1932 a larger number of fee-payers than free-place pupils passed the examination. Brockington (//) investigated the School Certificate results of grammar schools and found that of the total number of entries to the grammar school 63.7 per cent. sat for the examination, and 46.5 per cent passed it. A sample of nineteen grammar schools showed that of the free place pupils who entered 61.1 per cent. sat for the examination, and 43.75 per cent. passed. So that the free-place pupils were slightly less successful than the average entrants to the grammar schools; but we must remember that these free-place pupils entered the schools in the days when a free-place was given as a reward for scholarship, irrespective of the income of the parents; they represent ability rather than poverty. Brockington also reports an investigation into the examination results of ten grammar schools which showed that of the free-place pupils who entered the school at 10+ and stayed for five years 87 per cent. passed the School Certificate examination. This suggests that the inability or unwillingness of many elementary school children to stay for more than four years at a secondary school may be a cause of the inferior examination results of the ex-elementary school children.

We can judge that the schools which rank higher than the Grant-Aided schools in the social hierarchy win a higher proportion of examination passes by comparing the Merseyside Survey figures for Grant-Aided schools with those for the Birkenhead School and Liverpool College. Jones and Carr-Saunders found that the proportion of children who left Grant-Aided schools of Merseyside without having passed any public examination was one half, the same as the 1938 figure for the whole of England and Wales; the number who left the two independent schools without having passed any public examination was only one third. They also found that the children of

School Certificate course which falls upon a certain number of children from poor homes, and, for others who stay four years at the secondary school, there is the hazard that if they fail at their first attempt they cannot afford to stay for another term or another year at school to try again.

Those who pass the School Certificate enter the labour market with an achievement to their credit which prospective employers respect and which they are willing to pay for. They may well be pleased with themselves and their families are rightly proud of them. But for the child who has greater ambitions than a salaried, pensionable post in the lower ranks of the civil service there now begins a long struggle.

The university is a more essential part of the training of a gifted child from a poor home than it is for the child who has lived amongst books and people who read them, or amongst people who are active in a world of business or politics. One of the ways in which poverty restricts the opportunity of a child from a poor home is that it deprives him of the kind of friends that he needs. He suffers from his earliest years because he does not meet people who can understand and encourage his interests; he suffers at the beginning of his career because he does not know people who both recognise his merit and are in a position to help him. The child whose only contact with trained minds has been through the teaching of a mediocre secondary school finds the university necessary not only for the formal training demanded by professions such as the law, medicine or teaching, but also for the background knowledge of the life and thought of his times. No achievement, not even that of the religious mystic, is possible in isolation; all thought, and almost all feeling, is social, and the greatest and most original of geniuses have built their work on the traditions of their pre-

decessors. The university is a place where the student may swot for examinations, play games, and idle his time away in the more fruitless kinds of friendships, but it is also a place where the quick and sensitive may find the ideas and learning which reveal to them aspects of truth and show them their way for the future. If it had not been that Nottingham university was near to his home and within his financial means we might not have heard of D.H. Lawrence.

If the child from a poor home wants to go to a university he must stay for two more years at school. His parents have already sacrificed two years of his possible earnings, and during this period have probably done their best to feed him as appetite demanded and to dress him so that he should not feel ashamed of his clothes, and even to supply him with pocket money, so that he should not be solitary. Now that he has passed the School Certificate the reward for their efforts is in sight; he could become a clerk, earn more than his father could have dreamed of earning at his age, and move in a new and higher social sphere, and become one of those who have the hard won security conferred by insurance policies. It is not surprising that most children who come from homes which qualify them for a free education succumb to these temptations and leave school; the remarkable thing is that a number do not. Of the clever children who leave to enter business after four years at a secondary school nine out of ten may be no great loss to the world, but we are the poorer for the tenth who might have been a great scholar, judge, physician, engineer or poet. And at this point again luck has a hand in the decision. The child who has no brothers or sisters has a very much better chance than the member of a prolific family; and a lack of scruple is helpful, because the child who is indifferent to the privations of his family may ask for the extra years, whereas the conscientious child may say

nothing about his ambitions.

The cost in possible wages for two years will explain why Jones and Carr-Saunders found that 10 per cent. of the children at secondary schools who had "C" parents took the Higher Certificate examination, whereas 13 per cent. of the children who had parents in Grade "A" occupations took it. And whilst 11 per cent. of the children who in Merseyside Grant-Aided schools took it, 26 per cent. of the children in two independent schools took it. They found that 30 per cent. of the children of the independent schools left before they were 17, whereas 78 per cent. of the children of the Grant Aided schools did so. The Higher Certificate is an important qualification; all the subjects of the Merseyside Survey sample who passed it entered Grade "A" occupations, but, more than this, it is a usual step on the way to the university, and in the case of poor children an essential step, because through it they can win financial assistance.

The ability of a poor student to take up a place which he has won at a university will depend upon the financial help which he can win through examination successes. Let us first see how much a university career will cost him, and whether he can hope to collect enough in scholarships to cover the full amount.

Leybourne and White have analysed the cost of a year at the different universities. Cambridge is the most expensive; at Cambridge living costs and tuition fees come to at least £188. 1s. 0d. a year, and the student would have initial extra expenses of £27. 0. 0. when he went up, as well as an examination fee of £3. 0. 0. Oxford is a little cheaper than this, but only a little. Both these universities involve spending a sum which is appalling to a family accustomed to think of money in terms of shillings a week. The total cost of a degree for which

only three years study are needed at Cambridge amounts to £594. 3. 0. If the student wishes to read a science or any other subject for which four years are necessary the sum will be £782. 4. 0. These are the luxury universities; the best education is most costly at the university as it is at the school. I say the "best" education with diffidence. I think however one may claim that the academic standards of Oxford and Cambridge are higher than those of other universities, and certainly one may claim that through their prestige they give the best opportunities to their students.

At the newer universities and university colleges the cost of a degree is much less. Leybourne and White estimate the cost of a three year degree course for a subject which does not demand any especially expensive equipment at any English university other than Oxford or Cambridge as about £130. The cost of a similar degree at a Welsh university will be about one third cheaper, and certainly fewer students are debarred by poverty from taking a degree in Wales than in England. £130 is the cost for a student who can live at home. Hostel expenses will multiply the cost for a student who does not live within reach of his university. £120 a year has been given as the cost of a student's lodging in London. In Manchester hostel charges vary widely round an average of £80 a year, the women's hostels coming below this figure and the men's above it. So we see that the total cost for a three years course at an English university to a student who cannot live at home is in the neighbourhood of £380. or, at London, £430.

It is interesting to see that poverty does not merely decide whether a student can or cannot go to a university; it also decides what subjects he can study

Medicine is barred to the English student of the class which pays no fees at school. In Scotland this is not so, for the Carnegie Trust gives a medical training to many Scotch boys whose parents can afford to pay nothing for their education. The Carnegie Trust is the most generous of benefactors to students. The endowment began with funds of £2,000,000 in 1901. Since then they have increased by more than one third, and the proceeds are chiefly devoted to paying the fees of students who merely "declare their need" in order to get help; there is no inquisition into family means. Over the first twenty years of the operation of the funds nearly half the students of Scotch Universities profited by them (29).

Education has been more democratic in Scotland than in England since the time of William III, and boys from poor homes have repaid Scotland for her generosity by their contribution to civilisation. In Ellis's list of British men of genius (30) we find a larger proportion of eminent Scotchmen than of Englishmen; further we find that a larger proportion of eminent Scotchmen than of eminent Englishmen came from poor homes. Five per cent of famous Englishmen were of humble origin; eight per cent of famous Scotchmen were of humble origin. There is no proof that her comparatively democratic educational policy is the cause of the success of Scotchmen from poor homes, but in the absence of any different cause for it being proven we may suspect that it is.

Is a student able to collect by means of scholarships £188 a year? Or the smaller amounts needed for cheaper universities? There are several sources of help for students, but the task of collecting the necessary money in scholarships or loans is an oppressive one for a boy or girl to undertake. It involves spending eighteen months or two years of sixth form life in a ceaseless scholarship hunt, taking examinations at frequent intervals, never free

that it was not enough to know a certain amount about the subjects on the syllabus, she must know enough and do well enough to win a place in a scholarship examination which passes an average of one in sixteen or seventeen candidates. It is true that the examiners would be influenced by the fact that she had won her entrance to an Oxford college, but she did not feel that she could rely on this. I think that the girl's attitude towards work and ideas suffered from the ordeal. Her health certainly suffered, for when she went up to Oxford she was tired and was often ill during her first year. Some of her difficulties would have been destroyed if the conditions for winning State Scholarships were altered, but the issue at the moment is that she would have been spared all her troubles if she had not needed to earn by her intelligence the whole cost of her university career, and her history is important because it is the history of many boys and girls whose parents can afford little or nothing towards university expenses.

It may be argued that the task of scholarship hunting is no burden to the brilliant student and that the anxiety and strain which it entails affects only the slogger who is trying to do more than his powers really warrant. I have yet to meet the brilliance which is proof against all the onslaughts of circumstance. The student from the poor home who needs these rich and much sought after scholarships is probably deprived of the most potent fertiliser of genius, contact with minds as powerful as his own and more fully developed. He works in all the conditions of mental and physical hardship which I have already described. Unless his genius is merely precocity it is likely to remain latent until he reaches the world which for him will be easier and happier, the world of the university.

On the other hand we must remember that the student from the slum is almost unknown (see Ginsberg's table, page) He has fallen over one of the earlier obstacles in his path, and has dropped out of the race before the struggle to get to the university begins. The son of the skilled worker sometimes reaches the university, but the university is beyond the reach of the son of the casual labourer who spends part of the year on the dole. Therefore the worst drawbacks of poverty are not usually endured by university scholarship candidates, but the restrictions on the mental and physical life of the candidate from a working class home are enough to make the pursuit of scholarship an anxious and arduous business.

The State Scholarships are the richest source of help for the poor aspirant to the university. Three hundred and sixty of these are now granted each year, a number which represents a maximum, and which was the number granted in 1938. The scholarships give usually a grant for fees and tuition, and also, if the parents' income justifies it, a maintenance which may be as much as £100 a year. The full maintenance grant is in practice given only to students who are going to Oxford or Cambridge, and the average amount for grants which include maintenance is £120, a generous sum, but one which still leaves the student at the old and expensive universities with plenty of money to find. The State Scholarships may make a university career possible at one of the new universities without his having to find help from any other source, and this is a very solid benefit indeed. The scholarships seem to have gone to the right pupils, for in the decade 1928-1938 75 per cent of the winners were ex-elementary school children, and of those who graduated during the period rather more than half the men and a quarter of the women gained first class honours (91). No particulars are given of the educational origins of the

25 per cent who began their education at their parent's expense, but since they are available to pupils who have been at Grant-Aided schools during the two years before they sit for the examination, and as some of the more impoverished "Public" schools now receive a grant from the government, the pupils from some of the "Public" schools are eligible. The Board will if it thinks fit allow a grant to a school which accepts only ten per cent state scholars from the elementary schools, so that these grants enable a "Public" school to retain some of its exclusiveness whilst it receives a subsidy from public funds. Fifty-eight per cent of the "Public" schools receiving a Grant-in-Aid take less than 25 per cent. free-placers, and at least three times as many State scholarships per 1,000 boys awarded for Oxford and Cambridge in the academic year 1933-1934 were given to pupils at Grant-Aided "Public" schools as to pupils other secondary schools. (40). The scholarships are awarded on the combined conditions of ability and need, an advance on the policy laid down by the 1850 Commissioners for Oxford and Cambridge of awarding for academic merit alone, but if some of them go to fee-paying pupils of "Public" schools they are assisting the relative poverty of the middle class instead of poverty in an absolute sense. They may be assisting those who need and deserve help, but scholarships given to this class are not creating equality of opportunity.

The student who has failed to win a State scholarship, or who, if he has won one, needs further help to go to a university may be able to get help from his L.E.A. Most authorities are willing to help the pupil of their schools who has distinguished himself in the Higher Certificate examination, or in the entrance examination to a university. The help that they give is not so liberal, and in general it is a reward for a lower degree of merit, but they help a great many pupils and the more generous authorities

dispense large sums of money to give poor scholars the education which they deserve.

In England in the year 1935-36 5,666 scholarships were given by L.E.A.S. and their average value was £52 11 3d. In Wales during the same period 876 were given, and their average value was £31 2 1d. So we see that if a student wins a State Scholarship of £120, and in addition to this is given a scholarship by his L.E.A. of £52. his parents have to find only £10 to enable him to go to Cambridge. If he also wins a scholarship or bursary from the college he is entering he may, in theory make a profit on his training, but of course in practice each award is conditioned by the money which the student has already won, and money is not given to students who have already earned what they need.

Generous help is available to students, but it is not always given as wisely as it might be. We learn from Ellis (29) that some authorities do not give money but lend it; this means that young men and women who have no money behind them start their careers in debt. Other authorities have a flat rate for their scholarships and do not vary them according to the individual needs of the applicants; this may lead to waste in a few cases and hardship in others. Most authorities are glad to give additional help to State scholarship winners, but there are a few who will not help those who already hold scholarships. Many authorities fix a maximum value to the scholarships they will give, and this sometimes prevents them from helping a good student who needs a little more than the regulations allow. Other authorities are extremely generous and fix a minimum instead of a maximum sum for their grants. Birmingham has an excellent policy of allowing a free place at the university and a maintenance grant scaled according to the family needs to every child of the city which passes the second school examination. Other areas limit their total annual expenditure on scholarships and maintenance

grants at universities, so that when they have heavy commitments on account of students already at the universities they can only undertake small sums for new applicants. We can see that the opportunity of the poor student is largely conditioned by the area in which he lives.

There are also the scholarships and exhibitions offered by the universities and colleges themselves. In the academic year which ended in August 1938 473 such scholarships were given, and 325 exhibitions (40). Some of the sums granted were large enough to cover all fees and residence; most of them were only large enough to bring to the university students who had already won other scholarships, or whose parents were able and willing to pay part of his expenses.

These scholarships are of less use to poor students than any others, for they tend more than the others to relieve middle-class, instead of real, poverty. In the year 1933-1934 the "Public" and Private schools won 78 per cent of the scholarships offered by Oxford colleges and 74 per cent of the scholarships offered by the Cambridge colleges. This means, when the size of the different school populations are taken into account, that pupils of the "Public" and Private schools have ten times more chances of winning scholarships. Of the open scholarships offered by Oxford and Cambridge colleges, 53 per cent go to pupils of "Public" and Private schools, whose chances of winning them are therefore three to four times greater than those of other secondary school boys. Of the closed scholarships restricted to certain schools, 241 are available to "Public" schools and 50 to other secondary schools, which gives the "Public" school boy 16 times greater chances of winning them than other secondary school boys. (40). We learn from the Board of Education statistics for 1938 that 40 per cent.

of the open scholarships and exhibitions to Oxford and Cambridge colleges went to pupils who had paid no fees at school. Expressed in this manner the facts sound more in accordance with the needs of the poorest children in the schools, but they do not alter or invalidate the findings of Glass and Gray that the pupils of the more expensive schools have more chances of winning scholarships.

The scholarships which go to "Public" schoolmen occasionally go to an ex-elementary schoolboy. The English educational system is so complicated that it is impossible to dogmatise about its different sections. There is every degree of gradation in the secondary school world, ranging from the expensiveness and exclusiveness of the most famous "Public" boarding schools to the 100 per cent Special Place school under a local authority. At the "Public" day schools the elementary school boy is known, and at some of them ex-elementary schoolboys may constitute 25 per cent of the pupils. At the "Public" boarding schools the elementary school boy is unknown, except for rare cases, usually of boys who have found a patron. Scholarships to these schools are not open to elementary school boys, for, if there is no rule which debars them from sitting, circumstances debar them from success. An expensive preparatory school training is necessary for success at the Common Entrance Examination, or coaching at home of a standard far beyond that of the elementary school. Glass and Gray found that schools tended to be efficient in proportion to their expensiveness, and that their expensiveness increased with their exclusiveness. The fifteen most expensive "Public" schools obtained an average of 50 per cent of all the Oxford and Cambridge college scholarships which went to "Public" school men, and Eton, Harrow and Winchester accounted for an average

of 14 per cent. of the total. Pupils of these schools have three times greater chances of winning college scholarships to Oxford and Cambridge than the pupils of other "Public" schools. This leads to the conclusion that the ex-elementary school boy, although he is found at the cheaper "Public" schools, is not found at the ones which command most scholarship successes; and that the majority of the closed scholarships go to students whose parents earn between £400 and £600 a year rather than to those whose parents earn between £200 and £400.

There is one more way in which a boy from a poor home is at a disadvantage in the competition to enter the university, and that is that he lacks influential friends. One of the women's colleges at Oxford is reputed to give entrances to candidates who have influential parents or relatives, not from snob motives, but because it considers that the presence of young women with this kind of background gives a liberal and varied atmosphere to the college. I think that this motive, not always so frankly acknowledged, decides entries to most colleges at the older universities, but in the case of men's colleges it does not exclude poor and deserving candidates, because the entrance examination to the men's colleges is ~~most~~ not highly competitive. There is another way in which influential friends assist a scholarship candidate. It is difficult for the examiners to decide which of the scholarship papers they read are the result of clever teaching rather than of native wit; which are the result of a facility in absorbing the ideas of others, which represent power of original thought; which represent months of hard work, which are the triumphant achievement of a brilliant candidate who only decided a month before the examination that he would enter for it. The examiner

is glad to learn from someone whom he knows personally and whose judgement he can trust what is the real calibre of a candidate. The boy at a "Public" school is more likely to have teachers and friends who know the authorities of colleges and universities than the boy at some obscure County Council secondary school. The word spoken on his behalf may be well-deserved, but it may exclude a better candidate who had no one to speak for him.

What proportion of children from poor homes reach a university? Certainly a large proportion of students come from elementary schools. This is true even of the expensive universities of Oxford and Cambridge, as can be seen from the table on the next page. Of the total entries to all Universities of England and Wales for the academic year 1937-1938 more than half of those who had homes in the United Kingdom came from elementary schools. (91). It appears from the Board of Education table that 76 per cent of the ex-elementary pupils of Grant-Aided ^{Secondary Schools who went to a university had paid no} fees. This shows a high incidence of ability amongst the poorest pupils of the secondary schools. There is no better evidence than this for the progress of democracy in the British Isles during the last fifty years, and it is also an indication that the social incidence of the "Who's Who" of the future will be more widely distributed among the different economic classes.

But there is another angle from which we must examine the subject. It is not enough to consider the proportion of students who come from the poorer classes, it is also necessary to consider the proportion of children from poor homes who reach a university as compared with the proportion from well-to-do homes. When we examine the subject from this angle we get a less satisfactory answer.

In order to ascertain the proportion from the different kinds of school and different economic classes

Pupils who left Secondary Schools on the Grant List during the year ended July 1938 for the University. From Board of Education Report.

	Birm- ingham	Bris- tol	Camb- ridge	Dur- ham	Leeds	Liv- er- pool	Lon- don	Manch ester	Ox- ford	Read- ing	Shef- field	etc.	Total
<u>Boys</u>													
Ex-Elem. School Pupils	92 (69)	51 (36)	259 (190)	125 (95)	134 (100)	133 (100)	392 (248)	173 (126)	224 (186)	18 (12)	78 (60)	311 (247)	1,970 (1,469)
Other pupils	42	23	183	38	29	43	278	51	126	16	12	50	895
Total	134	74	422	163	163	176	670	224	350	34	94	361	2,865
<u>Girls</u>													
Ex-Elem. School Pupils	64 (51)	28 (25)	28 (21)	61 (54)	49 (41)	48 (36)	241 (178)	72 (60)	61 (53)	27 (18)	22 (20)	140 (117)	841 (674)
Other Pupils	14	20	39	6	22	34	244	29	52	19	12	29	519
Total	78	48	67	67	71	82	485	101	113	46	34	168	1,360

(Figures in brackets show numbers of pupils who paid no fees.)

who reach a university we can either relate the figures for children attending schools to-day to the number of entrants to universities and university colleges for the year 1937-1938, or we can take one year group and follow its members through their educational history, and so discover what proportion of the group proceed to a university. Both methods have their disadvantages, for the rapid fall of the birth-rate, and the steady increase in the number of ex-elementary school children admitted to universities, means that neither method gives an accurate forecast of the number of children at present in the elementary schools who will have a chance of a university education at the present rate of admission. I think that the second method which gives the economic origin of students who are at present studying at the universities, is the one which most accurately reflects the existing situation, and is therefore the one which I propose to use.

I shall compare the place of education in 1930 of the children who were ten years old with the entrances to universities in 1938. Ten years is the latest age at which we can be sure of finding all our subjects at their primary school; when they are eleven some of them are drafted to secondary schools. The comparison will be imperfect in that the Census year and the academic years do not coincide, but the fluctuations of the figures from year to year are not enough to distort appreciably the results.

From the Census returns we find that there were 754,850 children aged ten in England and Wales in 1930. We must reckon that $1\frac{1}{2}$ per cent of the age group owing to mental or physical disability would be unfit for a normal education. One and a half per cent is the proportion which the L.C.C. finds unfit for education, and I accept it as the average for England and Wales, since it is unlikely that the figure for London differs much from

that on the whole country. For the unfit children we must allow 11,323. The pretence at accuracy which the last digits of this figure implies is an absurdity, but as the Census returns, the Board of Education and University statistics upon which I base my calculations do not round their figures and do pretend that no child slips through, it is simpler to maintain the fiction of exactitude. By deducting the number unfit for ordinary education from the total number of children we find that there were 743,527 ten-year-old children who were presumably going to school or being educated at home. The Board of Education report says that there were 715,610 children aged ten to eleven in the public elementary schools in 1930. We find by deducting the number attending public elementary schools from the total number who were fit for education that the number attending private or preparatory schools or being taught at home was 27,917. Approximately 3.75, therefore, were being privately educated.

The "Returns from Universities and University Colleges of England and Wales" for 1937-1938 gives the number of students who entered to take full time courses during the year, and also the type of school from which they came. We find that 7,937 students with homes in the United Kingdom entered universities during the year, but this figure does not include Cambridge. Oxford received 1,192 students from the United Kingdom, and in order to obtain the numbers for the whole of England and Wales I have added the round number of 1,200 for Cambridge, which has rather more students than Oxford. This makes the total entries 9,137. The number of these given by the Returns as coming from the elementary schools is 3,361; this does not include the elementary school children who entered Oxford or Cambridge, but the Board of Education statistics give the number of ex-elementary school children

going up to Oxford from Grant-Aided schools as 296, and to Cambridge as 267. A few elementary school children may reach Oxford and Cambridge via other than Grant-Aided schools, they will be too few to make a significant difference. We may, therefore, say that the number of ex-elementary school children who went up to Universities and University Colleges of England and Wales for full time courses during the year which ended in July 1938 was 3,924.

From this we can calculate that of the 715,610 ten-year-old children who were at elementary schools in 1930 0.55 per cent reached a university. Of the children of the same age group who were privately educated 5,213 or 18.7 per cent reach a university. The child who is privately educated has, apparently, 34 times more chance of a university career than his elementary school contemporary.

There are a few children who slip through the statistics. Adult education scholarships, for instance, take a statistically insignificant number of ex-elementary school pupils to a university; these will not be included in the numbers going up to Oxford and Cambridge. Nor do my figures take into account children who were educated in English schools and proceeded to Scotch universities, although they do include the numbers educated in Scotch schools and proceeding to English universities. This does not matter since the interchange of students between England and Scotland is small, and we may safely assume that these small discrepancies would not appreciably alter the percentages.

It appears that very few of the able children of the elementary school class receive the opportunities which the university could give them. If there are ten per cent of the children of the elementary schools who

and difficulties of his home for some months of each year; if his gifts are very remarkable he should make the friends who will stimulate him and help him. Poverty has not necessarily finished with him as yet, for the demands of his family or his own cowardice may make him accept thankfully the position of a schoolmaster when he has taken his degree. One half of the men and two thirds of the women who win State scholarships teach when they go down; many of them are bound to teach whatever their disabilities for the work because they have accepted the Government Grant for training teachers, others teach because teach^{ing}, especially in a secondary school, means money, security and respect, things which are foreign to a poor home. School teaching may be the work for which their gifts fit them, in which case society has done its duty by them and will get the best possible return from them. I do not entirely subscribe to G.B.Shaw's dictum that "Those who can, do. Those who cannot, teach." Or they may choose teaching for the sake of safety, in which case they are in some degree responsible if the choice is a mistaken one. Or they may be driven to it because the hardships of their youth deprived them of the stamina which they needed to win a first class degree. Or they may choose it for the sake of their families. In these last cases poverty has crippled their career despite their early academic successes.

Conclusions to Part IV.

1. The Special Place examination selects 12.99 of the children in elementary schools for further education in Grant-Aided secondary schools. But it does not necessarily select the children who best deserve a secondary education because:-

- a) Numbers of children do not sit for the examination, or refuse Special Places which they win.
- b) The examination is unreliable in its assessment of candidates, as Valentine has shown.
- c) Some elementary schools make little effort to win Special Places, whereas others devote careful attention to the Special Place candidates.
- d) Some children are assisted in the examination by coaching out of school hours.
- e) Some areas grant a larger number of Special Places than others.

2. Some parents cannot afford a secondary school education for their children even if they receive full remission of fees and a maintenance grant because:-

- a) They must forego the child's earnings when the child is over 14 years old, and maintenance grants do not compensate for this.
- b) Secondary school life entails incidental expenses which it is embarrassing for the child to avoid.
- c) The free milk and meals scheme does not extend to secondary schools.

3. It appears from Gray and Moshinsky's estimate of the proportion of children with high ability who belong to the families of manual labourers, and from the Board of Education's

figure for the number of children of the economic level of the manual labourer who are in Grant-Aided secondary schools, that more than half the children with high ability whose parents are manual labourers or of the same economic class as manual labourers do not receive a secondary education.

4. The secondary schools controlled by Local Education Authorities are inferior to the better "Public" schools because:-

- a) The "Public" schools are better staffed, both in the qualifications of the teachers and in the proportion of teachers to pupils.
- b) The better "Public" schools have more liberal educational traditions and government.

5. Although, according to Gray, and Moshinsky free-place holders have a higher average I.B. than fee-paying pupils, yet it appears that fewer children from poorer homes pass the School Certificate and Higher Certificate examinations. This is probably due to:-

- a) The tendency for children from poorer homes to leave their secondary school earlier than children from well-to-do homes.
- b) The difficulty of doing good work in a poor home.

6. It is possible for poor students by means of State Scholarships and grants from Local Education Authorities to win enough money to defray all the expenses of a university course.

7. Closed Scholarships to the Oxford and Cambridge colleges are most of them limited to pupils of specific "Public" schools. Open scholarships offered by the Oxford and Cambridge colleges are most of them won by pupils of "Public" schools. Therefore the college scholarships are

chiefly useful to students who are poor by middle class, not working class, standards of poverty.

8. The proportion of elementary school children of England and Wales who reach a university is 0.55. The proportion of privately educated children who reach a university is 18.7 per cent. Privately educated children have therefore 34 more chances of reaching a university than elementary school children.

C O N C L U S I O N

Conclusion

My object has been to assemble the obstacles which a child from a poor home must overcome if he is to attain the higher ranks of success. I had hoped also to prescribe cures for some of the evils which I enumerate, but I find that it would be frivolous to attempt to do this unless I were to extend this work to a length of at least three hundred thousand words. I have, therefore, merely stated the problem, and leave the solution to other people or another time.

Much of what I have written appears to be an indictment of the state educational system. In a sense it is an indictment, because I believe that the state education system needs to be, and could be, improved. But it is not written in a spirit of carping criticism. It is easier to find faults than to find cures or to apportion blame for them. Immense educational progress has been made in the British Isles during the present century. The statistics show a steady increase in the numbers of elementary school children who receive further education at the public expense, in the numbers who are enabled by scholarships to go to a university, and in the numbers of ex-elementary school children who enter the professions. The schools are more generously provided for financially than they were forty years ago, and some Local Education Authorities have come to accept for the staffing, building and equipment of their elementary schools a standard not far below that of good preparatory schools. It remains true that most elementary schools have an inadequate

staff, gloomy, unhealthy buildings, and sketchy equipment, but we may take heart from the excellence of the good ones and hope that their standard will in time become the accepted one for all elementary schools. We can say that the secondary schools under Local Education Authorities fall far short in their educational standards of the better "Public" schools, but this is an easy criticism to make of schools which have been founded comparatively recently and which are still in the process of deciding their character and policy. In time they may discard the borrowed and ill-fitting traditions of the "Public" schools and may evolve traditions suited to the lives and aspirations of their pupils.

The praiseworthy achievements of the past and the hopefulness of the future are no reasons for refraining from criticism. Reforms are a result of effort and conflict and of a refusal to accept standards which are based upon existing conditions. The constant pressure of critical opinion is necessary to force a succession of educational reforms and to persuade public opinion that in education, which is the making of people, only the best is good enough. If we examine the evidence which Eicholz and other witnesses gave before the 1903 Committee on Physical Deterioration, and compare it with material from the elementary schools of to-day, we realise how much has been achieved for children by the schools, by public health services, and by an improved standard of living. There is no sign as yet that we have reached the end of the process, and that further improvements of environment are either impossible, or would not lead to improvements in the quality of the lives which it conditions. The variety of human life and its infinite possibilities, make such an end unimaginable; it will be a horizon which always recedes in front of the traveller.

I think that everyone who has responsible opinions on educational and sociological matters would admit that poverty imposes upon children handicaps which the educational system in its present form is unable to cancel. Everyone would admit that it is easier for the son of a landowner to become Prime Minister than the equally gifted son of a ploughman. But I do not think that I have been wasting my time in collecting evidence as to the number and kind of obstacles which a child from a poor home must overcome if he is to attain responsibility and distinction. For I think that many people believe that the educational ladder, although it is hard to climb, allows the best to reach the top. They would admit that there are accidents, such as are unavoidable when dealing with material so complicated as humanity, but they would maintain that such accidents are the exceptions rather than the rule, that the best brains tend to emerge successful, and that ability of the order described as genius would find that the educational ladder gave it an arduous but straightforward way to success. I have tried to show that poverty makes some obstacles which the educational system cannot obviate and which ability cannot surmount. On the one hand there are difficulties such as having to pass, in adverse circumstances and without one important failure, a series of examinations. This is a test in which high ability should bring success. On the other there is a tangle of inter-related difficulties against which ability is powerless so that luck will decide whether the candidate wins his way through or not.

I see the story of gifted children from poor homes rather like the tale of the ten little nigger boys. Many are eliminated early because malnutrition and illness in childhood diminish the vitality which is a necessary condition of great achievement. Others go to schools which make no effort to get their pupils Special Places.

A few are ill on the day of the Special Place examination and so miss their chance for life. Others by some accident fail in the Special Place examination. Others do not sit for the examination or do not take up Places which they have won because they have parents who cannot or will not forego their earnings or who cannot or will not face the extra expenditure which a secondary school entails. Others have a tender conscience and are unwilling to accept a secondary school career if their brothers and sisters are to be penalised by it. Most of these leave school at fourteen and take up work which gives them little opportunity, time or encouragement for pursuing their half-formed interests. Some have rare and invaluable intellectual gifts, but lack the qualities of character needed to develop them in adverse circumstances. Some, who might have done work unique in kind or quality, fight their way laboriously to a university, and arrive there too much exhausted mentally and morally to win the honours which they would have won if they had had an easier background. The highest intellectual powers do not necessarily carry with them the characteristics which would enable their owners to surmount or evade the obstacles of poverty, and when luck plays so large a part in the decision the best may be unfortunate and be thrown aside, and the fortunate mediocrity may attain a relative and unimportant success. The odds are heavily against genius and rare good luck in the hazardous course between the slum and the university being united in the same child.

I think that many men of potential genius are lost entirely to the world through the obscurity and hardship of their homes; I think that many more win a certain measure of success but have their development stunted by early mental and physical privations. The history of every art and science contains biographies of men who

might have done fine work, but who failed through some flaw in their intellectual equipment, or processes, through some weakness of their character, or through some misfortune of their circumstances. Many of these failures are due to influences which are nothing to do with economic conditions, and many of them are due to inherent imperfections. But poverty creates an unfavourable environment, and must often cause the physical and intellectual lassitude, the financial anxieties, the gaps in experience and training, the lack of inspiring friendships, which lower the standard of achievement. Because they can buy a better environment the wealthy can buy for themselves a superiority of mind and ability.

It is reasonably certain that in the past genius amongst the children of the poor has been wasted through lack of training and opportunity. When we consider the weight of poverty to-day and imagine the grim and narrow existence of the inhabitants of the slums, it appears as if we still allow the destruction of the work of musicians and poets, statesmen and scientists, who will die without having exercised their gifts and leave us none the less the poorer because we shall be ignorant of our deprivation.

BIBLIOGRAPHY OF REFERENCES.

BIBLIOGRAPHY OF REFERENCES.

1. ALLEN, G. The Genesis of Genius.
2. BAKER, H. Characteristic Differences in Bright and Dull Children.
3. BATHURST, N. Investigation into the Development of Adolescents. Reported in "Nature" Sept. 1939.
4. BENTLEY, J. Superior Children.
5. BLANTON, S. Changes of Distribution of Intelligence in Relation to Malnutrition. Nat. Comm. Of Mental Hygiene. 1919.
6. BOCKINGTON, F. Dependence of Body-Weight on Animal Protein Foods, "Public Health." April 1939.
7. BOCKINGTON, F. Influence of the Growing Family upon Diet. Journal of Mental Hygiene, Jan. & Sept. 1938.
8. BOCKINGTON, F. Relationship Between Gain in Weight and Diet in Children. "Public Health" July 1939.
9. BOYCE, E. Play in Infant Schools.
10. B.M.A. Report of Commission on Nutrition. 1933.
11. BROCKINGTON, W. A Secondary School Test.
12. BURKS, B. Note on the Standford Study of Foster-Children Journal of Ed. Psychol. 20.
13. BURT, C. The Backward Child.
14. BURT, C. Mental and Scholastic Tests.
15. BURT, C. The Subnormal Mind.
16. CARTER, H. Family Resemblances. Journal of Genet. Psychol. 12.
17. CATHCART, E. & MURRAY. Med. Res. Coun. Spec Rep. 218 & 151.
18. CATTELL, J. A Statistical Study of Eminent Men. Popular Science Monthly. Feb. 1903.
19. Census. Returns for 1931.
20. CHIEF MEDICAL OFFICER of the Board of Education. Health of the School-Child 1938.
21. CLARK, C. The National Income.
22. CLARK, le G. National Fitness.
23. COHEN, Dr. Investigation concerning inter-relations of:-

- 1) Social & Economic Status
- 2) Stanford-Binet Performance I.Q.
- 3) Estimates of Probable Vocational Success.
Thesis Submitted to Liverpool University.
24. CORRY-MANN, H. Med. Res. Coun. Spec. Rep. No. 165.
25. CRAWFORD, W. The People's Food.
26. DICK, J. Housing and the Growth of Children.
27. DRUMMOND, J. (and others) The Nation's Larder.
28. DUFF, J. & THOMPSON, G. The Social and Industrial
Distribution of Intelligence in Northumberland
Brit. Journal of Psychol. Vol. XIV.
29. ELLIS, G. The Poor Student and the University.
30. ELLIS, H. Studies in British Genius.
31. FISKE, J. Sociology and Hero-Worship.
32. FORD, P. Work and Wealth in a Modern Port.
33. FREEMAN, F. The Effect of Environment upon Intelligence,
School, and Society.
34. FREEMAN, F. Twenty-Third Year Book of the National Society
for the Study of Education.
35. FREEND, G. The Schoolboy. A Study of his Nutrition and
Health.
36. GALTON, J. Hereditary Genius.
37. GIFFORD, W. Does Business want Scholars?
38. GINSBERG, M. Interchange Between the Social Classes.
Econ. Journal. Dec. 1929.
39. GINSBERG, L. Parenthood and Poverty.
40. GLASS, D. & GRAY, J. Opportunity and the Older Universities.
Political Arithmetic. Ed. L. Hogben.
41. GRAY, J. The Nation's Intelligence.
42. GRAY, J. & MOSHINSKY, P. Ability and Opportunity.
Sociological Review. April & July 1935.
43. HASTINGS, S. A National Physiological Minimum.
44. HAXEY, S. Tory M.P.
45. HOGBEN, L. Genetic Principles.
46. HOLLINGWORTH, L. Gifted Children. Their Nature and Nurture.

47. HOLLINGWORTH, L. & TAYLOR, G. Studies of Physical Conditions and Growth. Twenty-Third Year Book.
48. HORWOOD, M. Public Health Survey. (U.S.A.) 1921.
49. HUTCHINSON, R. & MOTTRAM, V. Food and the Principles of Dietetics.
50. INQUIRY into Rehousing undertaken by Manchester, 1934.
"The Human Side of Slum Clearance."
51. JONES, C. & CARR-SAUNDERS, A. Relations between Intelligence and Social Status amongst Orphan Children.
Brit. Journal of Psychol. 17.
52. JONES, C. & CARR-SAUNDERS, A. The Social Structure of England and Wales.
53. JONES, C. & CARR-SAUNDERS, A. Social Structure of Merseyside.
54. KERR, J. Fundamentals of School Health.
55. KUCZYNSKI, J. Hunger and Work.
56. LANGE, J. Crime as Destiny. Trans. by C. Haldane.
57. LASKI, H. The Personnel of the Foreign Office. Fabian Tract 223.
58. LAWRENCE, E. An Investigation into the Relation between Intelligence and Inheritance. Brit. Jour. Psychol. Monog. Supp. 16.
59. LEAGUE OF NATIONS. The Problem of Nutrition.
60. LEIGHTON, G. & MCKINLAY, P. Milk Consumption and Growth of School-Children.
61. LEYBOURNE, G. & WHITE, K. Education and the Birthrate.
62. LINDSAY, K. Social Progress and Educational Waste.
63. MACFAYDEN, N. Health in Garden Cities.
64. MAIR, L. Report on Back-to-Back Houses in the West Riding.
65. MAKINGS, S. Some Aspects of Liquid Milk Consumption.
66. M'GONIGLE, G. Poverty, Nutrition and Public Health.
Paper Read to the Royal Society of Medicine 1933.
67. MELLANBY, E. Nutrition and Disease.
68. MESS, H. Industrial Tyneside.

69. KILLICK-MILLARD. Paper read at Public Health Congress 1932.
70. MÜLLER, H. Mental Traits and Heredity. Journal of Heredity 16.
71. MURRAY, B. Effect of Material and Social Conditions on Birth- Weight and Birth Length. Med. Res. Coun. Rep. 81
72. NATIONAL INSTITUTE FOR RESEARCH IN DAIRYING. Report of Milk Nutrition Committee. 1939.
73. NATIONAL SOCIETY FOR THE STUDY OF EDUCATION. Twenty-Seventh Year Book.
74. NEWMAN, H. Mental and Physical Traits of Identical Twins Reared Apart. Journ. of Heredity. 23.
75. NIGHTINGALE, R. Personnel of the British Foreign Office and Diplomatic Service. Fabian Tract 232
76. ODIN, A. Genese des Grandes Hommes.
77. ORR, J. Food, Health and Income.
78. ORR, J. & GILKS, J. Med. Res. Coun. Spec. Rep. No. 155
79. ORR, J. & CLARK, M. Lancet 1930
80. PATON, FINDLAY & THOMPSON. Health Nutrition and Growth.
81. PINFNER, R. Intelligence Testing.
82. REGISTRAR-GENERAL. Statistical Review. 1932.
83. REPORT of School Medical Officer for Breconshire. 1935
84. REPORT of Medical Officer for Health of Deptford 1930
85. REPORTS of L.C.C. Medical Officer for 1907 and 1933.
86. REPORT of Peckham Centre for 1935-37. Biologists in Search of Material.
87. REPORT of Medical Officer for Schools. Sheffield, 1935
88. REPORT of School Medical Officer for Warrington. 1935
89. REPORT. Med. Res. Coun. No. 114. Social Conditions and Acute Rheumatism.
90. REPORT of Royal Commission on Physical Deterioration 1903
91. REPORTS of the BOARD of Education. 1930, 1937, 1938.
92. RETURNS from Universities and University Colleges for the Academic Year 1937-1938.
93. ROBERTSON, J. Housing and Public Health.

94. ROLL, E. A History of Economic Thought.
95. ROWNTREE, S. The Human Needs of Labour.
96. SCHUSTER, Dr. Quoted by Hogben in "Genetic Principles."
97. SCHWESINGER, G. Heredity and Environment.
98. SEGAL, C. A Pennyworth O' Chips.
99. SEYMOUR, A. & WHITAKER, J. Dietetic Experiment.
Industrial Psychology, Summer No. 1938.
100. SMITH, L. A New Survey of London Life and Labour.
101. SPENCE, J. An Investigation into the Health and
Nutrition of Children of Newcastle-on-Tyne.
102. STOCKS, P. Mortality and the Density of Housing.
Published by the Royal Society of Medicine.
103. SYKES, J. Public Health and Housing.
104. Tables compiled by the Anthropological Section of the
British Association.
105. TAWNEY, R. The School Age and Exemptions. Published by
the W.E.A.
106. TERMAN, L. & COX, C. Genetic Studies of Genius.
107. THORNDIKE, E. Educational Psychology.
108. TREDGOLD, A. Mental Deficiency.
109. VALENTINE, C. The Reliability of Examinations.
110. WARD, F. Applied Sociology.
111. WHIPPLE, A. Fifteen Years of Education.
112. WINGFIELD, A. Twins and Orphans: the Inheritance of
Intelligence.
113. WOODROW, H. Brightness and Dullness in Children.
114. WOODS, F. & ISSERLIS, L. Med. Res. Coun. Spec. Rep.
No. 74.
115. WYNNE, C. Report on Housing in Relation to Health.
Published by the Housing Centre.
116. YATES, D. A Study of some High School Seniors of
Superior Intelligence. (Ref. in Bentley.)
117. YERKES, R. Psychological Examinations in the U.S. Army.
National Academy of Sciences. 15.
118. BRADBURY, F. Causal Factors in Tuberculosis.