

PHYSICAL DETERIORATION

being mainly

AN INDICTMENT

against the

CITIES OF THE TIME

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W.



SYNOPSIS.

Definition.

Arguments, 1) a priori, 2) a posteriori, against hereditary change.

Conclusion that environment is all-important.

Relative consequent smallness of problem.

Subdivision into four parts.

Interpolation as to nomenclature.

Evidence. The Physical Deterioration Committee.

Justification for proceeding without evidence.

Falsely assigned proofs of physical deterioration

- 1) Insanity increase.
- 2) Birth-rate diminution.
- 3) *Infantile mortality.*

VALID CAUSES OF THE CONDITION.

1) City life, 2) Improper diet, 3) School System (with remedies) 4) Child labour, 5) Bad Ventilation, 6) Alcoholism, 7) Juvenile Smoking, 8) Decline in parental sense.

INVALID CAUSES.

- 1) Rise of marriage age.
- 2) White bread.
- 3) Lack of exercise.
- 4) Vaccination.
- 5) Production of degenerates by degenerates.
- 6) Inherent degeneracy of Aryan race.

TREATMENT OF CASES ALREADY EXTANT.

Prevention.

- 1) Garden Cities.
- 2) Study of Sociology.
 - a) Eugenics.
 - b) Employment of the Public Press.
- 3) Education of children and parents about dietetics and hygiene.
- 4) Protection of pregnant and nursing women.
- 5) Physical Exercise.
- 6) Medical Inspection of Schools
- 7) Dealing with various other valid causes mentioned above.

INTRODUCTION.

It is necessary first to state the delimitations of this thesis. The term "progressive degeneration" has been largely used in the recent discussion of the subject, and may be taken to contain a reference to heredity as a factor in this problem. Later I will adduce evidence to show that Dr. William Hall, of Leeds, for instance, who has spent much thought upon the subject, was, at one time, inclined to believe that heredity, as shown in the difference between the Jewish and the Gentile children whom he examined, might be an important factor in this question. He has now altered this opinion. It appears to the writer that, both on a priori and a posteriori grounds, the factor of heredity may be ignored in this question, and that of environment alone considered.

The a posteriori grounds for ignoring heredity are as follows. In the first place, none of the evidence I have been able to collect, and none of the evidence referred to by any writer or speaker on this subject, is in any way in favour of the view

that this is a progressive change, i.e., a change progressively increasing from one generation to another. Dr. Hall's evidence may be explained, much more satisfactorily, on other grounds, as I will try to show, and as he has shown. As against the view of an inherited progressive deterioration of the race there is, then, no evidence.

(Since the above was written, I have come across the opinion of Dr. Leslie Mackenzie on this point. According to the account of an interview published in the "Edinburgh ~~Evening~~ Evening Dispatch" of March 9. 1904. Dr. Mackenzie said that by racial degeneration he understood the transmission of weakness and disease from one generation to another, whereas the results of his inquiries had been that, in the great proportion of cases, there was nothing which would have prevented the children from growing up healthy and fit had they been reared in a better environment. Few of them were hereditarily weak or diseased.)

The a priori argument is even more convincing. The majority of those who have asserted the occurrence of a progressive change appear to be quite ignorant of the fundamental facts of evolutionary

biology. Nowhere have I been able to find even an allusion to the fact that their assertions run directly counter to the law first termed by Darwin "Natural Selection," and now generally known by Herbert Spencer's less equivocal phrase, "the survival of the fittest." Those who assert that there is a progressive degeneration occurring amongst any classes of our people have it incumbent upon them to explain how there should be an infraction of a law which does not express all the facts, but to which biologists are daily admitting fewer exceptions. Biology asserts that hereditary degeneracy is necessarily doomed to extinction, provided that there obtain - as there certainly do in this instance - the Malthusian conditions. It was study of Malthus which led both Darwin and Wallace to their theory of natural selection (see "Darwin's Life and Letters," and Wallace's "Wonderful Century" (new edition) of geometrical progression in the number of living creatures with arithmetical progression in the amount of that which sustains them. In other words, as long as there is what Alfred Russel Wallace has named a "struggle for existence," the fittest must survive. This a priori argument against the exis-

tence of a progressive degeneration amongst our people is not properly complete unless the objection be met that the "fittest" does not necessarily mean the "best." This is, of course, true. The "fittest" means merely the "most perfectly adapted to the conditions," or the environment. No one, however, can maintain that, even in the highly "unnatural" environment of civilization, or even the malignant environment of crowded cities, the physically degenerate are any "fitter" than their neighbours. Indeed, they are obviously less so: and I therefore hold, on the a priori assumption of the truth of the law of natural selection, that there cannot be any progressive deterioration of our peoples - a conclusion equally justified whether approached inductively or deductively, as I have shown. On the contrary, the degenerates tend to an early death, to a relative or absolute sterility, and their stock soon dies out.

When heredity is thus excluded, environment alone is left. This advance in the discussion not only greatly simplifies the subject, but it is exceedingly comforting. Were we compelled to believe that a representative section of the Aryan race, such as ourselves, was undergoing a hereditary degeneracy owing to some maleficence of the environ-

ment which made the fittest of Spencer's formula the least fit according to our ordinary standards, then the conclusion would be that the white race, as a whole, was probably doomed to extinction - perhaps hastened by the oncoming of the Mongolian. There would thus be raised issues of planetary significance. As it is, however, we have to face a very much smaller, and very much more hopeful problem; this, namely, that certain conditions of environment, such as city life, bad feeding, alcohol, foul air and so forth, are causing a certain number of each generation to undergo deterioration in their life-time. Of these a certain number undoubtedly add hereditary degeneracy to the next generation, but the law of natural selection ensures that their race soon dies out. The subject of this thesis is therefore thus subdivisible; (1) to consider the evidence which appears conclusively to show that such deterioration is occurring; (2) to consider the causes which produce it; (3) to consider how ^{the} contemporary deteriorate product may be improved; (4) to consider how the process of deterioration may in future be prevented.

Before proceeding to the discussion of these four subdivisions in detail I may make a note as to

terminology. The word degeneration - a coming "down from the genus" - is better applicable to a progressive condition in which each generation produces another worse than itself. This is just the condition which I believe does not hold in the case under discussion. The term "deterioration," on the other hand, meaning etymologically simply "a becoming worse," is more fitted to the case as I believe it to be. In order to avoid the obvious implications of the former term, I think its use should be abandoned by writers on this subject; unless, indeed, they believe that the condition is a progressive inherited degeneration.

One other note may also here be made. Though I deny the existence of a hereditary degeneration, this is by no means to imply that the number of persons physically deteriorated in this country is not increasing. On the contrary, I believe there is ^{suggestive} ~~abundant~~ evidence to show that the number is increasing: in other words, that of each generation, born in an approximately healthy condition, a larger number is destined later to fall from the normal standard. I shall be unable to furnish proof, though I believe there is much to support the contention,

that the increase in the number of those who thus deteriorate is roughly proportionate to the increase in the urban as compared with the rural population.

I. The Evidence for Deterioration.

The Physical Deterioration Committee of the Privy Council is at present sitting on the subject of this thesis, and the Secretary informs me that it expects to finish its labours in the early part of the summer of 1904. The evidence and conclusions of the Committee will be published in Blue-book form, and will extend much beyond the scope for which the Committee was formed. The Committee has become, in fact, a Royal Commission in miniature, and from what the Secretary tells me it is improbable that a Royal Commission, as had been expected, will be appointed at the conclusion of what the Government described as a "preliminary inquiry." The Secretary tells me that he is unable to permit me to use or even to read any of the evidence. All that the public may hear is the names - occasionally published in the "Times" - of some of the more important witnesses, and I find it impossible to get, by writing to them, any information of value for my purpose. There is only one medical member of the Committee, a fact

which encourages me to hope that some of the points raised in this thesis may retain some little value after the Blue-book appears.

The following occurrence will show that it is impossible, as is indeed obvious, to adduce scientific proof of the increase of the condition which is the subject of this thesis. On 10th March the Council of the Royal College of Surgeons of England approved a report from the Committee on Physical Deterioration, pointing out that, as the Council had asserted, there are no trustworthy data for comparing the physical condition of the nation at the present time with that which obtained in the past. The Council recommends an anthropometric survey of the United Kingdom, using the tests and measurements recommended by Professor Cunningham. Such a survey will probably be undertaken, and will furnish the beginning of data which will enable the question of a progressive change to be answered. We have since been informed by Sir William Anson, speaking in the House of Commons on the Scottish Education Bill, that it was thought necessary to ascertain "what steps should be taken to furnish the Govern-

ment with a periodical set of facts as to the physical condition of the people and to try to indicate the causes of the deterioration and to point out the means by which it might be improved. The committee began to sit in the winter, and they found that the British Association had appointed a committee, of which Professor Cunningham was chairman, to inquire into the same subject. The committee put itself in communication with the committee of the British Association, which met them in a most cordial spirit. Professor Cunningham gave evidence, and the scheme already outlined by the British Association committee was sent to the College of Physicians and the College of Surgeons. The College of Surgeons had sent back word that they cordially approved of the proposed scheme, that there should be a regular survey of the population of the United Kingdom - of the agricultural and working population and of the children in the schools, and that means should be taken to ascertain their physical condition at the school age. It was hoped that by proper management it might be possible to cover the whole of the United Kingdom in ten years, so that there might be a complete survey of the United Kingdom in the course of every ten years."

In other words, the evidence for physical deterioration does not as yet exist, scientifically speaking. Nevertheless I think it is legitimate to discuss the question on what non-systematised information we already do possess.

Under these circumstances little practical value can attach to my statement of the evidence for deterioration, since that evidence will presently be published in far greater detail than is possible for anyone who has not the apparatus of a Royal Commission at his disposal. I therefore propose here to mention only the facts which led me to study the subject in the first place, and such facts, subsequently collected, as will justify me in the further step of considering etiology, treatment and prophylaxis.

At the beginning of April 1903, I came across the statistics of lunacy in Scotland for 1902 and the preceding years. Looking up the text-books on suicide I saw that there was some evidence that that is also on the increase. Seeking to correlate the mental with the physical I then looked up the recruiting statistics, and found that the teeth of recruits were stated to be getting worse, and that the standard of height, weight and chest measurement for admission

to the army had recently been lowered in a quite indefinite manner, it being left to the medical officer to pass a recruit in if his physical deficiencies were considered to be "due to defective nutrition and not to constitutional taint" - a pair of meaningless phrases which may bear an indefinite number of interpretations. I therefore decided to study the subject of the national physique and introduced the subject - which had long been lost sight of - into the London press, by a paragraph which appeared in the leading Liberal paper - the "Daily Chronicle" - on May 8. and in a quasi-editorial article entitled "Are we degenerating?", which appeared in the "Morning Advertiser" of May 11. Shortly afterwards there appeared the report of the Army Medical Department for 1901. which showed that the ratio of rejection of would-be recruits had risen by 12.30 per 1000 in 1901 as compared with 1900. Then there appeared the results of the Scottish investigation by the Government, and the report of the Royal College of Physicians of Edinburgh, showing how porridge is gradually disappearing as the staple breakfast food of Edinburgh board school children. These facts and many more I sent to the "Daily Chronicle," the

"Morning Advertiser," the "World's Work" for September 1903, the "Academy" for June 27; and a long correspondence ensued in the first named paper, in the course of which Dr. James Cantlie, Mr. Benjamin Waugh and many other people were interviewed. The Earl of Meath saw some of these papers, and asked for more facts for his speech on the subject in the House of Lords. These I was able to send him for this purpose.

Generally speaking, it may be said that the evidence for a lack of proper and normal physique in our urban populations is derived from (1) the observation of anyone who has worked in the slums of great cities or in the out-patients departments of their hospitals; (2) the statistics of Army recruiting; (3) the results of examination of board-school children, hitherto carried out most completely in Scotland by the Royal Commission on Physical Training. Numerous fallacies underlie all these sources of evidence. None of them, for instance, can be held to demonstrate any aggravation of the case as compared with, say 1894 or 1884. The data for comparison do not exist. Furthermore, there is the normal psychological trait which leads all men to become at times, laudatores

temporis acti, saying that these are not the sort of young people one saw when one was young oneself, and so forth. Further, as regards recruiting statistics, the statement has not yet been controverted that, owing to the improvement in trade and other causes, the class from which would-be recruits are drawn, is lower than formerly: that the army is, more than ever, recruited from the nation's failures, and that therefore, proof of a progressive deterioration is not to be found in recruiting statistics. (For recent evidence - or rather rudiments of evidence - re London school-boy see British Medical Journal. April 9.1904: pp.829 -830)

Admitting, therefore, that I have no really inexpugnable evidence, I yet would plead that one is entitled to proceed, simply on the ground that the above sources of evidence do at any rate prove that there is physical unfitness, and that this problem may be considered, without its being necessary to prove what cannot be proved or disproved for many years, viz., that it is on the increase. For this we can only point to its association with urban life, to the increased population of cities, and therefore to the deductive inference that it must be on the

increase.

Proofs falsely assigned.

It is right here to dispose of three supposed proofs which have been alleged. The present absence of absolute proof is no reason for accepting proofs which are no proofs. Those alleged are; (1) the increase in insanity, which implies an increase in physical deterioration: (2) the steady fall in the birth-rate: (3) the undiminished - though not markedly increasing - infantile mortality.

1. The increase in insanity yet remains to be proved. Until then, no one is entitled to assert it as a fact or adduce it as proof of another fact. The facts on this matter are well summed up by Dr. Milson Rhodes in an article "On the Alleged Increase of Diseases of the Nervous System," in the British Medical Journal of March 12, 1904. He agrees with the State Board of Insanity of Massachusetts, that there is no positive proof of this alleged increase of insanity. This, of course, is not to deny that it may exist.

2. The steady fall in the birth-rate of this country has been taken as a proof of physical deterioration, showing that the reproductive power is on the wane. A recent correspondence in the British

Medical Journal (March 5; 19. 1904) has dealt with this question. Dr. Hope Grant thinks that modern civilisation and atheletics have increased the size of women's muscles and diminished the size of her pelvis: this in defiance of the known anatomical fact that one chief function of the skeleton is to afford points of attachment to muscles. There is surely more possibility of Sir Halliday Croom's "bicycle perineum" interfering with the end of the second stage of labour, than of Dr. Grant's suggestion. The only point worth noting here is that Dr. Grant does not seek a failing physique as the cause of the falling birth-rate. Dr. Milson Rhodes (March.19) does not do so either, but refers to other causes, such as what is quite erroneously and unjustly termed "Malthusianism" (Malthus never recommended this practice), the increase in the average age at marriage, the decline of illegitimacy and so forth. At any rate, no medical authority I have been able to discover traces any connexion between the falling birth-rate and the supposed failing in the national physique. I hold, therefore, that this supposed proof of a deterioration in the national physique is no proof at all.

3. The still scandalous rate of infantile

mortality is alleged as a proof of the failing in the national physique, it being supposed that the children die because they are too degenerate to live. On the other hand we know that a child which has survived intra-uterine life has already given proofs of vitality, and that, on the average, there is no inherent, i.e., inherited, reason why it should die. We know, furthermore, from the comparative death-rates of breast-fed and non-breast-fed children, and from similar considerations, that extraneous circumstances determine the overwhelming majority of these deaths. I submit, therefore, that the infantile mortality is not an evidence of failing national physique. But the two questions are most gravely inter-related, though the relation is other than that alleged. The relation is not one of cause and effect. It is one of common causation: that is to say, the state of the national physique and the infantile mortality in the lower classes are both symptoms, and consequences, of the same causes, viz., city life, bad feeding and the others I have named (excepting, of course, those such as conditions at school, which are not operative until the infantile period is past, and which are incalculably less important.) These causes, when

their action is most profound, lead to death, when less so, to a deterioration of physique. The two conditions are therefore caused by the more, or less, powerful action of the same causes. Between them there is no causal nexus as alleged, viz., that the children die because they are degenerate.

II. Causation.

It will be convenient to discuss the various causes which I believe to have produced the present state of things, and then to consider the remedies which it is within the scope of the medical profession to apply or at least aid in the application of. And at this point it may be said that the treatment can be only or almost only prophylactic. For the physical failures of the present generation we can do little or nothing on a large scale, for those of the rising generation little more. To the generation yet unborn must preventive measures be applied; and it may be taken that applicability of proposed remedies to the coming generation is the most valid criterion of their worth. This test will all but rule out such proposed remedies as compulsory military service - with all its attendant disadvantages in relation to the spirit of the

people, disadvantages such as we see in the brutal militarism of Germany.

VALID CAUSES.

(1) City life. This I believe to be the most important single statement of causation that can be made. The following are some of the facts I have collected in support of this view.

In the Debate on the national physique in the Upper House in July of last year, the Earl of Meath pointed out that in 1851 the urban population of England and Wales was 8,990,000 out of a total population of 17,927,000 or 50 per cent; in 1891 it was 25,000,000 out of a total population of 32,000,000 or 77 per cent. As has been pointed out by Mr. Rider Haggard ("Rural England") it is the most energetic and intelligent members of the rural population that chiefly tend to migrate into the towns. The less fit remain in the country - and survive. The fittest deteriorate in the towns, and their children with them. This process obviously constitutes an appalling drain on the nation's vitality. An index to the significance of this change of balance between the rural and urban populations is not to be found in the comparative death-rates which, as provisionally supplied by the Registrar

General, were in 1903, 16.3 per thousand for the 16 great towns of England and Wales, and 14.8 per thousand for rural England and Wales. These figures do not at all indicate the lethal or deteriorating influence of town life, and there are far more effective arguments against the supposed healthiness of towns (inferred from such statistical results) than those contained in the following passage in a letter to the "Times." "The degree in which our large towns are causing physical, mental, and moral deterioration of our race is concealed, especially from the numerous persons who do not wish to know of the evil, and in lesser measure from all of us, by the misleading death-rates which we all see in our newspapers. These death-rates seem to show that our towns are quite wholesome places. Probably not one person in a hundred of those who read such statistics remembers that every year tens of thousands of men and women of the ages at which life is strongest and death less frequent pass into our towns from the country, thus causing there to be a much larger proportion of persons of the ages at which deaths are most frequent in the country and in small towns and a much larger proportion of persons of the healthiest ages in the towns. It is also forgotten that of the servants, male and

female, who form a considerable part of the population of towns, a large proportion leave the towns when they are seriously ill and return to their country homes to die. If the degree in which health is destroyed in our towns were revealed by "vital Statistics", English Governments would long ago have passed beyond the stage at which it is possible for them to assume that it is necessary to inquire whether physical deterioration is taking place.."

These arguments are open to criticism. Nevertheless it is the duty of the profession to teach the public how misleading these statistics are. We know City life to be the chief cause of physical deterioration - despite these statistics - because, in the first place, the ^{evidence} ~~existence~~ of this deterioration is mainly derived from city dwellers - board school children and would-be Army recruits. The correspondent I have quoted adduces far better arguments against the worth of the obvious inference from uncriticised statistics when he says; "If the committee will come to Manchester and place itself in communication with the Manchester and Salford Health Society, or with the association of which I am president, or with the wardens of the Manchester University Settlement, it can at once be shown large districts in which there are no well-grown children, or men or women, except those who have been

born in the country."

There is much more evidence of this general nature. Havelock Ellis ("A Study of British Genius" p.22) says, in relation to the districts that produce genius; "London as a birthplace has been omitted altogether. When the facts are available, it is nearly always found that the parents had migrated to London." On P.93. he says of the production of genius by the proletariat; "What production it is accountable for remains rural rather than urban." Dr. Cantlie ("Degeneration amongst Londoners," 1885. p.19) defines a Londoner as one whose parents and grandparents were born and bred in London: and during four years in which he investigated the question, he was unable to find a single Londoner in this true and definite sense, whilst even those who were Londoners back to the grandparents on one side only, were usually stunted and feeble, and unlikely to propagate. In the discussion which I originated in the "Daily Chronicle" last summer, Dr. Cantlie declared that eighteen years' more study of the question had served only to confirm his opinion. Dr Harry Campbell ("Causation of Disease" p.245) among two hundred London-born children found ^{only} two or three whose parents and grandparents were born

and bred in London, and these children were very delicate.

I do not consider it necessary to ^{discuss} ~~consider~~ all the different immediate causes of deterioration which are conditioned by city life. If it can be shown that city life is responsible, there is little need to discuss in detail such factors as smoky atmosphere, with its effect on the bronchial passages and lungs and its great diminution of sun-light (60% in London, according to Sir W.B. Richmond): overcrowding: bad housing: influences like badly ventilated music-halls, and so forth. Believing as I do that the city of the future must be built de novo, and that no tinkering with present cities can perfect them, I do not hold it worth while to inveigh against certain features of cities, as if the removal of them would suffice.

(2) Insufficient or Improper diet is, I believe, the second most important cause. It is, of course, largely conditioned by the first - city life. Sir Frederick Maurice alluded to this early in the history of the present discussion of this question. In his article in the "Contemporary Review," he said;

"Now, whether of the children sent from the towns into the country districts, either of soldiers or ci-

vilians, or of the children sent into hospitals, one hears the same story from those who have to look after them. The children have been so unaccustomed to the wholesome nutritious food suited to their time of life that they cannot eat it. They want what they have been accustomed to; what they call relishes - red herrings, pickles, fried fish and the like."

For the purpose of ascertaining the average methods of feeding children in London, I consulted the case-books of the Great Ormond Street Hospital for Sick Children, and the East London Hospital for Sick Children, Shadwell. Confining myself to the records of the feeding of the first nine months I examined and noted what was said on this point in 300 cases at each hospital, omitting those in which the account was imperfect, but not making any selection otherwise. (I did not do all this work myself, being assisted by friends in residence at these hospitals.)

At Great Ormond Street Hospital I obtained the following results. During the whole of the period in question, ^(the first nine months) 72 of the three hundred children were entirely breast-fed: 56 were not fed on the breast at all: 72 were partially breast-fed: 92 were partially fed on patent foods (Mellin, Nestle, Ridge, Allen & Hanbury

Benger, Horlick); 40 received some amount of solid food: and 71 were partially or entirely fed on cow's milk and barley water.

Reduced to percentages the following are the results;

Entirely breast-fed.	24%
Partly " "	24%
Not breast-fed at all	18.6%
Partly or entirely fed on patent foods	30.6%
Partly fed on solids	13.3%
Partly or entirely fed on cow's milk	23.6%

Assuming that the cow's milk was not properly modified - as we reasonably may - the net result is that three children out of four were improperly fed during the first nine months of life.

At the East London Hospital for Sick Children I was warned to expect ^{atypical} ~~artificial~~ results, as the Hospital has for some time adopted the practice of distributing leaflets on the right feeding of infants amongst the mothers of the district from which its cases are drawn, and it was considered that the percentage of breast-feeding had greatly risen in consequence. Of 300 cases, taken without selection, the results showed that 159 were breast-fed for the first nine months, 60 were partially breast-fed and 81 not at all. Reduced to percentages the following are the results;

Entirely breast-fed	53%
Partly breast-fed	20%
Not at all breast-fed	27%

^{last} These results compare very favourably with those of a hospital in a much better neighbourhood. Taken together, I think they show conclusively how much improvement is possible in the diet of London children in the most important period of their lives; they show the value of educative measures; and the contrast between them removes, at any rate in part, the very proper objection that these figures represent the feeding only of such children as are admitted to hospitals, and are therefore very much worse than those of the general population. To this objection there are two answers; one that there is the above difference between figures taken under different conditions, showing that not bad feeding alone was the prime cause of the illness; and the other, that most of these children would have brothers and sisters, and that their feeding would approximately represent the average of that to which those other children were subjected.

Various authorities support the view which I think is demonstrated by my statistics. The third article on "Physical Degeneration" in the British

Medical Journal Dec. 5.1903, deals with the "Food Factor in deterioration," but does not contain any evidence as to what the present state of things is. The following extracts are, however, authoritative.

The report of the Royal Commission on Physical Training (Scotland) 1903. says, "We consider that the question of the proper and sufficient feeding of children is one which has the closest possible connexion with any scheme which may be adopted for their physical and equally for their mental work."

Sir John Gorst, in a speech quoted to me by Dr. William Hall of Leeds, but of which I cannot give the date, says, "It is beyond question that 30 per cent of the children who are brought up in our great cities suffer from want of nourishment."

Mr. Charles Booth, in Vol.3 of "Life and Labour in London," says, "There is abundance of evidence that the aggregate of children underfed at home is deplorably large. ----- Many are starving, and to teach a starving child taxes not only a teacher's energies, but his conscience too."

Dr. William Hall has thoroughly studied this question in Leeds, and I will now deal with some of his results. He finds great differences in the feeding

of Jewish and Gentile children in Leeds, with the following consequences - as they may fairly be held to be. He examined 2,704 Board School children from 6 to 13 years of age, and found that

	lbs	in	years	
the poor Jew	is 3 heavier	2 taller	at 8	than the poor
" " " "	6½	2½	10	Gentile " " "
" " " "	7	2¼	12	" " "

Also the following;

		Rickets	Bad or Backward teeth
Good District Gentile School..	.8 per cent		38 per cent
Poor District Gentile School..	50	"	60 "
Good District Jew's School....	5	"	11 "
Poor District Jew's School....	7	"	25 "
Country School.....	11	"	33 "

The following table gives the average weight and height, from seven to twelve years of age (inclusive), of boys and girls of English-speaking races, calculated from the total of English and American Statistics (Stevenson), compared with the weight and height of Jewish Board School children in the Leeds unsanitary area:-

WEIGHT.

	7 years	8 years	9 years
Boys and Girls of English-speaking Races.	Lbs 48.23	Lbs 53.26	Lbs 58.50
Boys and Girls of Leeds <u>Poor</u> District Jews	49.33	53.50	59
	10 years	11 years	12 years
Boys and Girls of English-speaking Races	Lbs 64.28	Lbs 69.78	Lbs 77
Boys and Girls of Leeds <u>Poor</u> District Jews	64	67	76
HEIGHT.			
	7 years	8 years	9 years
English-speaking Races.	Ins 45.42	Ins 47.25	Ins 49.37
Leeds <u>Poor</u> District Jews	45	47	49.50
	10 years	11 years	12 years
English-speaking Races	Ins 51.47	Ins 53.56	Ins 55.40
Leeds <u>Poor</u> District Jews	52.50	52.23	55

It may be noticed, he says, that the Jewish Board School children in the Leeds unsanitary area are, upon the whole, equal in weight and height to the average weight and height of English-speaking races, and superior in weight and height to the other schools examined.

Dr. Hall found that herring, brown bread, Dutch cheese, eggs and coffee form the staple of the poor

Jew's diet. (Herring are the most nutritious form of fish. ^{allow} Macfadyn²) Further he says, "Amidst poverty, dirt, and overcrowding he ^[the Jew] holds sacred the natural law that thou shalt not rob the child of his mother's milk, and he sees to it that his wife shall have every help in providing for the maternal nursing, and the subsequent feeding of his child. He will suffer hunger rather than ignore it; neither outdoor work nor outdoor frivolity is thought of by the nursing Jewish mother."

Dr. Hall next proceeded to prove that the Gentile inferiority was due to bad feeding. I quote again; "By the kindness of friends, 60 seven years' old Gentile Board School boys and girls have each received, on five days a week for the last three months, half a pint of new milk and a nutritious bun. Three months ago these children totalled 187lbs below the average weight of that age. Allowing for three months' natural increase of weight, and allowing for the weight of the clogs and stockings, which two generous ladies have provided them, these children show a clear gain in total weight of 40 pounds. - It may fairly be credited to the three months' extra food - not only so, but they are manifestly less anaemic, and look much more cheerful."

And also; "The average increase of weight of a boy or girl between seven and eight years of age is 5lb. I weighed 55 children, aged seven to eight years each - 28 boys and 27 girls - on December 29. I weighed them again, some to-day and some yesterday (January 12 and 13). They had gained altogether 63lb. This is at the rate of two stones per annum each. It certainly seems hardly credible. I have gone carefully over the figures, and I weighed the whole myself on each occasion, with the help of a reliable assistant. I cannot find any error. It must be remembered that at the end of November these children were some 180lb. below the normal weight, and also that during the last two weeks they have been fed abundantly by me and by other charitable friends, and even with the late addition they are considerably below the normal weight for their age." I think it may fairly be claimed from my own statistics that improper feeding is a fact in London, and from Dr. Hall's that underfeeding is a fact in Leeds.

In a letter to the "Times", the date of which I have lost, Dr. Hall suggested that it might be an inherited Jewish superiority which accounted for his

results. This tended to support the view of the present case in our people as a hereditary change, a view which it is one object of this thesis to disprove. Dr. Hall has now, as I have already shown, declared his belief that the difference between Jew and Gentile is mainly one of diet.

Valid Cause III

Our present educational system is unquestionably inimical to the production of the best possible physique. I believe the following to be the chief evils: to be remedied only when the medical profession definitely asserts and obtains its right to a hearing in educational matters.

(1) Children go to school too young. (2) The total number of hours each day is too long. (3) The individual lessons are too long. (4) The child is frequently fed either insufficiently or too rapidly before it goes to school. (5) Schoolrooms are imperfectly ventilated. (6) The type of school-books is frequently too small, thus producing eye-strain and nervous exhaustion which reacts upon the physique.

1. Children go to school too young. This fact was largely recognized forty years ago. In his treatise on Education (p.113, sixpenny edition), Herbert Spencer considers this a truth frequently insisted upon, and mentions "one of our most distinguished

professors of physiology, who told us that he did not intend his little boy to learn any lessons until he was eight years old." But there is still need for grave protest in this matter. In the "Paidologist," the organ of the British Child-Study Association, (Vol.V No.2) Dr. Clouston too is very clear on this matter. He regards the first stage of brain development as "from birth up to about seven years," during which "there is no power of continuous application - or should not be." He says that during this period education, "if pushed will certainly do harm, from the brain point of view, and that of the general organism. There should be little difference between the principles of treatment of a kitten and a child at this period of life." He further says, "As the brain can only produce a certain amount of energy it follows that if you expect too much of it in education there cannot be enough left for the stimulation of digestion and for the assimilation of food, for the growth of bone and muscle, and for the proper working of the lungs and heart."

The second point I have raised is merely a corollary of the above. The third - as to the length of the individual lessons - is determined by the po-

Wundt

wer of attention, or "apperception," as ~~Wundt~~^A calls it, during childhood. Every psychologist agrees with Wundt, who is the chief authority on apperception, that the child's feeble powers in this regard cannot be unduly taxed without severe nervous exhaustion. The fourth point - As to the feeding of the child before it reaches school - has already been raised in Parliament, and is referred to elsewhere in this thesis. The fifth point is dealt with under the question of ventilation generally. The sixth needs no further mention.

I will here deal with the other relations between our schools and the subject of this thesis. The following should, I believe, be recommended by the profession.

(a) Systematic medical inspection of school-children, as practised in Zurich, and recommended by Dr. Leslie Mackenzie.

(b) Systematic examination of children in order to ascertain whether they are adequately fed. As to whether the State should feed such children, or feed them and demand payment from their parents is a sociological and not a medical question. At any rate, the

medical verdict is that, if the child be not fed it must not be taught. The cruelty of the present method is hardly to be calculated. One can faintly realise it only by recalling how tedious one's own lessons sometimes were, and then trying to imagine the super-addition of hunger on such occasions. yet this is what sixty thousand children have to endure every morning in London at the present time.

(c) The encouragement of Professor Geddes' Nature-Study as a School subject. This will mean more fresh air, more freedom to use the limbs and hence improved physique for the growing child.

(d) The teaching of the elements of hygiene and dietetics in all national schools. Fortunately the profession is now preparing, on this point, a petition to the Central Educational Authorities of the country.

Cause III

Closely allied to the questions raised by schools is that of child-labour, one of the most hideous abominations of our civilisation. The profession knows perfectly well, and should teach, that, on hygienic grounds alone, no child should work. This is a counsel of perfection: but it is none the worse for that.

That this is a crying evil even to-day I will prove by quoting from a report issued in March 1903 by the Hornsey Town Council. ~~No~~ No less than 570 children in that borough, or 7 per cent of the school rolls, work in the hours when they ought to be at play. Some of the cases are almost incredible, such as that of a six-year-old who puts in $11\frac{1}{2}$ hours a week delivering milk, or that of a boy who works $58\frac{1}{2}$ hours - more than seven days of eight hours - in delivering bottled beer. It is most satisfactory to learn that the Council have decided to fight the evil tooth and nail. They have drawn up new by-laws for the protection of the little ones which have been sent to the Home Office. Under these laws no child under eleven is to be set to work at all, and for those that do work the hours are limited to twenty-five a week. ~~the~~

Case I

Bad Ventilation is unquestionably another cause of the present state of affairs. There is ignorance and apathy on the part of the public, but there is also a serious defect in the present law, as proved by the report of the Factories Commission (1903). The Commissioners found that, in a large number of cases, the percentage of carbonic acid in the air was far

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above the limit of "physiological impurity," - . 04% -
though the number of cubic feet of space per person
was well above that enjoined by law. Neither the law
nor the public recognizes the literally vital distinc-
tion between cubic feet of space and cubic feet of air.
It is not possible to measure the cubic feet of air
passed, in a given time, into school-rooms, factories,
etc. Future hygienic legislation, which it is the
duty of the profession to promote, should therefore
order, I think, that properly qualified inspectors
make periodic estimates of the carbonic acid ratio in
such places, their visits being not notified before-
hand, and penalties shall be inflicted if the amount
exceeds a fixed quantity on a certain number of occa-
sions on which the air is so tested. The assertion
that ventilation is not practicable is an idle mis-
statement. In Messrs Rowntree's Confectionery Works,
York, which I have examined, there is a system of ar-
tificial ventilation, and the manufacturer is more
than recouped for the expense by the better work which
his employees turn out.

Cause II

The trail of alcohol is all over the subject of
this thesis: fully to deal with it would be impossi-
ble. I can only say that whilst we must recognize

it as a profoundly important factor in many ways, it is probably not an elemental one. It is largely included, for instance, in my indictment of City life. In attacking the city one attacks all its consequences, or all that it aggravates, overcrowding, smoke, lack of sunlight, consumption of alcohol, and so forth. One point I have tried to ascertain. In a letter to the "Pall Mall Gazette" last summer (reference lost) a teetotal lecturer, the Rev. H.M. Isitt, stated that drinking is now three times as common amongst women as it was a quarter of a century ago. The question of feminine, of maternal drinking becomes very important in relation to the supposed increase in physical deterioration. I have tried - pending the decision of future anthropometric surveys as to our actual increase of physical deterioration - to ascertain whether feminine drinking is actually on the increase. The almost universal assertion is affirmative, but I have not been able to get anything definite. At any rate, some doubt attaches to the evidence derived from inebriate homes. In the latest book on the subject ("Alcohol, its place and power in legislation," Robinson Souttar. M.A., D.C. h. 1904), Dr. Souttar points out several reasons why more women than men ^{are} ~~should be~~ committed to inebriate homes (p.232). The data for enabling the

medical profession to warn the country as to the danger which it is almost certainly running from the increase of drinking amongst women, do not as yet exist. Obviously here is one of the possible uses of such a body as the Sociological Society to which I refer elsewhere.

Cause VII

Juvenile tobacco-smoking. I waive the question of adult tobacco smoking, and its hostile influence upon the children of the smoker, because, whatever ought to be expected a priori, we have no evidence; and if a definite deleterious influence on the offspring were exercised, it would probably have been observed. As regards juvenile smoking, I can adduce no evidence that this is a valid cause of the present state of the national physique; I can only say that a priori it is more than probable, since we cannot believe that the habitual ingestion of a neurotic poison by a growing organism can be innocuous. So much we may say, though it is more than doubtful whether nicotine or any other alkaloid is the poison in question. Furthermore, I can quote the authoritative names of those who signed the manifesto which appeared a few weeks ago in the "Times."

Cause ~~(VII)~~ Decline in the parental sense. I can ad-
duce no proof, in the scientific sense of that word,
for the contention that this is a cause of the present
state of things. One would have, first of all, to
prove that it had declined, and then to prove its va-
lidity as a cause. Both of these tasks are, properly
speaking, impossible. Nevertheless, I think the pro-
fession should recognise the significance of this ques-
tion, if ever the British Medical Association or some
authoritative medical body gives its collective opi-
nion on this matter to the nation. This point is es-
pecially suggested to me by the last - juvenile smok-
ing. Apparently the neglect or ineptitude or super-
session of the parent has reached such a pitch that
the London School Board is about to issue leaflets to
the children under its care, describing the noxious
effects of tobacco! I would not have believed this,
had I not seen it in the "Times."

CAUSES WRONGLY ASSIGNED.

In the long discussion on this subject in the Press and elsewhere at least six causes have been assigned for the present condition of the national physique, which do not bear investigation. The first is that the progressive increase of the average age of marriage is partly responsible for the condition. Mr. Long, answering Mr. D.A. Thomas in Parliament, ^{said} "The mean ages at marriage of men and women respectively in the groups of years from 1867 are:-

	Men	Women
1867-1870 (four years).....	28.0.....	25.7
1871-5.....	27.9.....	25.7
1876-1880.....	27.9.....	25.7
1881-5.....	28.0.....	25.7
1886-1890.....	28.3.....	26.0
1891-5.....	28.4.....	26.2
1896-1900.....	28.4.....	26.2 //

No doubt the progressive decrease in the birth-rate is partly attributable to this fact, but there is no evidence, or even likelihood, that the present younger generation is born of parents too elderly for the most successful reproductive results, and I have collected much evidence to show that the present decline in the size of families, associated with the later marriage age, is not at all an ominous sign. Havelock Ellis ("A Study of British Genius" 1904. pp.106 et seq.),

finds that genius is one of the abnormalities associated with families of large size. The average size of genius producing families he finds to be 6.5, whereas that of ordinary families is 4.52 (F.Howard Collins quoted by Professor Karl Pearson, in "The Chances of Death, Vol.I.p.10). Havelock Ellis finds that his results hold good whatever century be taken for study: if the nineteenth alone be taken, the average size of the ⁱgenus-producing family is even larger (6.96). Galton ("English Men of Science") obtained a like result; as did Noder ("Boyhood of Great Men", Pedagogical Seminary, Oct. 1894). Of course this alone would not prove my contention, but Toulouse ("Causes de la Folie" 1896, p.91) shows that insanity-producing families are similarly unusually large, and Professor Magri ("Arch. di Psichiatria" 1896) shows the same to hold of families that produce criminals. He also found hysteria and neurasthenia to be common in large families. Langdon Down ("Mental Affections of Childhood") found that imbeciles and the weak-minded tend to belong to large families, and in Berlin the same result was obtained by Cassel in 1901. I hold, therefore, that the evidence, at any rate from the mental

side (correlated, who can doubt, with a physical state) is opposed to the view that the present state of the lower classes of our urban populations may be ascribed, even in part, to the later age at which people nowadays marry, or to the associated decline in birth-rate. It is indeed questionable whether either of these tendencies is to be regretted.

Another cause, without doubt falsely assigned, has been put forward by a number of medical men who have written to the papers as well as by many of the laity. Unfortunately these persons have many of the physiological text-books and such eminent names as that of Sir Thomas Lauder Brunton on their side. The supposed cause in question is an aspect of the dietetic question with which I have dealt elsewhere. It has been repeatedly alleged that the introduction of the roller-mill for flour, the liking for very white flour, and the general consumption of white flour as opposed to whole-meal bread, Graham bread, or ordinary brown bread, is a serious cause of the deterioration in national physique and notably in the state of the people's teeth. The medical teaching is so contradictory on this point, and the error is so need-

less that I believe this to be one of the points on which those who speak with authority should lay special stress. Sir Thomas Lauder Brunton states ("Action of Medicines" 1897 (page cannot be stated owing to the imperfection of the Index) that the American dentists are so good because their ^{American} modes of whitening flour are so good and their ^{American} teeth therefore so bad. This dictum of his has been quoted in the present discussion. The belief in the superiority of wholemeal or brown bread is due to the undoubted fact that these contain more proteid matter. In the "Times" of Jan. 18, G.I. Arnold in a letter on this subject, stated that "the bread of the day is a white substance made from materials out of which all the strength-giving properties have been carefully eliminated." Robert Hutchin~~s~~on ("Food and the Principles of Dietetics" 1902. pp.195 et seq.) has gone into this subject thoroughly. According to his own analyses, proteid is really more abundant in white than in whole-meal bread: and the difference in mineral matter is negligible. Atwater ("Chemical Composition of American Food Materials") and Bell, obtained the same results. According to Hutchin~~s~~on, 65 per cent of the mineral matter in whole-meal bread is contained in the bran, and bran is only

absorbed with the greatest difficulty by the human digestive apparatus. According to Rubner and Goodfellow (quoted by Hutchin~~x~~son) fully half of the mineral constituents of whole-meal bread never enter the blood at all. Hutchin~~x~~son concludes that "there is no justification for recommending the use of whole-meal bread by growing children or nursing women." The question has been finally decided by Atwater in the Annual Report of the Office of Experiment Stations of the Department of Agriculture of the United States Government for the year ended June 30.1901. I quote from that report. "According to the chemical analysis of ~~G~~raham, entire-wheat, and standard patent flours milled from the same lot of hard Scotch Fife spring wheat, the graham flour contained the highest and the patent flour the lowest percentage of total proteid. But according to the results of digestion experiments with these flours the proportions of digestible or available protein and available energy in the patent flour were larger than in either the entire-wheat or the ~~G~~raham flour. The lower digestibility of the protein of the latter is due to the fact that in both these flours a considerable portion of this constituent is contained in the coarser particles (bran) and so re-

sists the action of the digestive juices and escapes digestion. Thus, while there actually may be more protein in a given amount of graham or entire-wheat flour than in the same weight of patent flour from the same wheat, the body obtains less of the protein and energy from the coarse flour than it does from the fine, because, although the including of the bran and germ increases the percentage of protein, it decreases its digestibility. By digestibility is meant the difference between the amounts of the several nutrients consumed and the amount excreted in the faeces. The digestibility of first and second patent flours was not appreciably different from that of standard patent flour. The degree of digestibility of all these flours is high, due largely to their mechanical condition - that is, to the fact that they are finely ground. These results are in accord with other accurate investigations, but their special value lies in the fact that the experimental inquiry has been more thorough and extensive than any previously reported. The disparity between the conclusions just quoted and much of the popular belief, current newspaper statements, and, indeed, some of the teaching in physiolo-

gical text-books, illustrates the importance of having such problems carefully studied."

This insistence on the consumption of white bread as a cause of the condition I am discussing is therefore without a foundation in fact, and it is desirable, as Professor H.E. Armstrong says in a letter to the "Times" on this very point, that the energies of those who are attempting to combat this evil, be not squandered on an unjustifiable campaign against the use of white flour for bread.

A third cause wrongly assigned for the present state of the national physique comes under this category only because of the absurdly over-rated importance which has been attached to it by many persons, some disinterested, but many working for their own private ends. This supposed cause is lack of physical exercise. Elsewhere in this paper I have sought to show in what degree lack of physical exercise is really a cause of the condition, but I think a warning should be uttered by those in authority that undue stress may well be laid upon this matter. It is easy to show how the public has already been misled on this point. Herr Eugen Sandow, for instance, has reprinted the report of the Commission which sat

on the question of Physical Training in the schools of Scotland, with remarks of his own inserted in parallel columns. This pamphlet he has had widely distributed. He declares that the dream of his life is coming true and in similar wild phrases insists that the Commissioners have demonstrated physical training to be a panacea. The newspapers have largely taken up his views. Various correspondents have made the cry of physical deterioration an argument in favour of universal military service. It has been asserted that conscription will arrest the condition and cure all these evils. It is yet very far from being generally recognized that the evil is done long before the age of military service. Sir Thomas Lauder Brunton was a leading spirit last summer in the founding of a National League of Physical Education and his views have gone far to confirm the public belief that in sport and conscription is to be found the remedy for the state of our urban populations.

Colonel Duke, Honorary Secretary of the Lads' Drill Association, writes to the "Times" (Feb.1.1904) saying; "The association I represent are of opinion that the most potent and effective agent in dealing with the physical deterioration of children is to be

found in universal compulsory and systematic physical training, carried out in all schools, accompanied, as such training must essentially be if compulsory, by a fuller inquiry into and a more careful attention to the health of the children undergoing it, and, as a natural consequence, in the adoption of steps remedial to the environment which starts so many of them in life with depraved and diseased constitutions.

The Government, as a whole, by initiating the arrangements for a Royal Commission of inquiry into the physical condition of the people, and the Board of Education in particular, by the attention it is now paying to the establishment of a suitable model system of physical training, have recognized that national action on these lines is demanded of them. The War Office has also ~~shown~~ its sympathy by affording most valuable assistance in the placing of the services of its gymnastic staff at the disposal of local authorities for purposes of physical instruction and the training of teachers. Further, there are abundant signs that, when the new educational authorities acquire a fuller hold of the powers now vested in them, they will direct their attention effectively to the

physical as well as the mental education of the children under their management."

There is no question that this letter represents a very general opinion as to the real cause and remedy for the present state of affairs. It is even supposed that national military service and physical training will rectify the tendency to undue shortening of stature only too evident in the out-patients department of the London Hospital where I have observed it. Now height is mainly obtained by the activity of the epiphyseal cartilages near the knee and ankle. According to Poland (quoted by Alexis Thomson, ~~act.~~ Epiphyses, Encyclopaedia Medica) the lower epiphysis of the tibia unites in the 18th year, that of the fibula about a year later, the upper epiphyses of these bones between the 20th and 22nd years, and the lower epiphysis of the femur between the 20th and 23rd. The activity of the cartilages diminishes as these ages are approached, and it is absurd to suppose that deficiency in ^{the} ^{of height can} standard _A be avoided or cured by military training undergone just when the cartilages are ceasing to function.

After writing ~~in~~ the above I find in the "Army and Navy Gazette" (Feb 20) an article on the remedy

for the present state of the national physique by Dr. Arthur Rideal. His plan is to put every boy - future mothers do not count with him - through a five years' course of drill and instruction, beginning when he is twelve or thirteen years of age. In the "Pall Mall Gazette" of Feb. 23. 1904. this plan is heartily applauded at considerable length. This instance is typical of the sort of remedy - so-called - which finds favour with the public and the press. It is our duty constantly to be on the watch lest a palpably quack remedy like this be seized upon to the exclusion of the objects really worthy of pursuit.

As I write there is shortly to be published by Messrs Isbister a book on the national physique. On inquiry of the editor, Mr. J.B. Atkins, I find that it will consist of a series of papers on "National Physical Training," contributed to the Manchester Guardian by Sir T. Lauder Brunton, Sir Charles Beresford and other people. Messrs Cassell, of whom I have enquired, also tell me that their "Physical Educator" is having an enormous sale. Any book of this type is read, and anyone who declares that sport, outdoor exercise and athletics are the cures for the evils in question, is eagerly listened to, since he is in

consonance with a tendency of the race. It is to me evident that the British Medical Association or the Medical Faculties of four Universities have laid upon them the duty of asserting the true remedies for a state of affairs which is now clamant.

One further proof of this contention I may adduce from a letter in the "Times" of March 28.1904, from Sir Henry Burdett, a recognized popular authority. He makes the following statement, contravening all the facts and theories of my thesis: "It was decided to delay the appeal for workers and money in sufficient quantity to guarantee that the whole of the child workers of the metropolis should be provided with adequate playgrounds, clubs, and the attendant healthy amusements and manual exercises whereby the present degeneration in the physical stamina of younger Londoners can be arrested and cured without fear of retrogression." The notion that physical defects can be "arrested and cured," by "amusements and manual exercises," though cities as at present known, bad feeding, overcrowding, and so forth continue, is one to be controverted, whenever it appears, by the medical profession.

But in combatting this prevalent attention to

the later years and neglect of the period at which the damage, as I believe, is really done, I am actually in opposition to a body no less august than the Royal College of Surgeons of England. In their reply to the inquiry recently addressed to them by the Home Secretary regarding the circular drawn up by the Director-General of the Army Medical Service on the physical deficiencies of the men who offer themselves for enlistment in the Army, the Council say that

"much might be done.....by emphasizing the necessity of still stricter attention to the health, feeding and training of school-children, and more especially the care of the teeth and the arrest of threatened or early decay." On my contention the Royal College has committed a grave error in counselling that emphasis be laid on these - doubtless most important - things. The emphasis should be laid on the earliest years of life, and notably on the diet of that period. The motto - obsta principiis - seems entirely to have been overlooked. I claim to have shown that, even in quarters where much better things might be expected this fetichistic belief in physical exercise as a panacea still prevails. It is our duty to expose the obvious fallacy that under-

lies it.

One more proof of my contention is to be found in a book called "Japanese Physical Training" by H.I. Hancock, 1903, which has been widely noticed in this country lately. On reading the book I find that care of children, attention to diet, bathing and devotion to open air are more important parts of the system than the physical exercises with which, judging by the reviews, I expected the book to be filled. The public mind is so obsessed with one aspect of the question that even when the others are presented to it they are not seen. The medical profession must clearly indicate the age at which the evil is done. In an article on the subject contributed to the "Daily Chronicle" by Francis Galton, the question was asked, "Assuming that a small dole could be given to parents to aid them in bringing up their children, what is the age at which that dole would be of the most value?" Writing the following day I insisted that the second year of life was the most important, assuming that the child was breast-fed during its ^{nine months or so.} first year. When the public recognizes how early the mischief is done, universal military service and Mr. Sandow's schools will have their proper impor-

tance and no more attached to them in this connexion. The remedy seems to be so easily applied and suits so well our national instincts, and the prejudices of those who govern us - themselves brought up in the English Public Schools, where athletics are worshipped - that it behoves the medical profession to be on its guard lest undue importance be attached to measures which are doubtless curative in tendency, but are not to be looked upon as prophylactic. The evil is done long before these measures are in any degree available.

Needless to say, vaccination has been assigned as a cause. At the annual meeting of the National Anti-Vaccination League, on March 16. the president, General Phelps, said; "Physical degeneration, which is now troubling the public, is a natural consequence of the method of sowing disease by vaccination. One would have thought that the Commission which was appointed to inquire into that question would have gone into the inquiry with open minds, and would have seen that, first and foremost, among all the causes of degeneration there was none more significant than the introduction of cow-poxing - the introduction of miscellaneous disease - into every child born. One

would have thought that the Commission, whatever its own views might have been, would have been only too anxious to have light thrown upon the problem which it had to solve. But, rather than run the risk of finding that vaccination was one of the great causes of the deterioration which they were all deploring, they absolutely refused to look at it, or to hear what was to be said on the question." Here is another

danger to which we must be alive. *And Goethe was right when he said that "quiescence in motion" is the most dangerous thing in the world.*

Another cause wrongly assigned, as I believe, is the production of degenerates by degenerates. I have dealt with this at length at the beginning of my thesis. This is the place, however, to mention and condemn a remedy which depends for its value on the presence of such a progressive degeneration. This is the remedy of Dr. Rentoul, referred to elsewhere. The sterilization of certain classes of the community becomes superfluous, at least in the present connexion, directly it is admitted that the survival of the fittest, as I have tried to show, is a sufficient safeguard in itself, and in no need of Dr. Rentoul's proposed assistance.

Another cause wrongly assigned is based upon the assumption of a general inherent national-racial de-

cadence of which there is no evidence. It is suggested that - for reasons not given - the British race is degenerating. One supporter of this view was Dr. Hall of Leeds, who based it upon the differences which he observed between Jew and Gentile children in that city. He has, however, changed his mind. At a meeting held at the Society of Arts in London, under Sir William Church, he attributed the difference to the fact that "the Jews know how to feed their children properly."

TREATMENT. Practically all that is ^{commonly} written about the prevention of physical deterioration is not prophylactic but therapeutic. The relative importance of treatment is so slight, and the true prophylaxis has been so greatly neglected that this part of my subject needs only a formal notice; especially as there is nothing of importance to say.

The treatment of physical deterioration in the adult obviously varies with the nature of the case. The panacea of most who have written on this subject - physical exercise - is well applicable to him.

In the case of the adolescent of both sexes who have left school the actual remedying of such defects

as are present is more hopeful. Exercise, good food, fresh air and so forth may even add to their inches when meagre, and will certainly develop their chests. Of course, pages might be written at this point - but the matter would all be obvious, and in any case, this is not the important part of the subject.

The child at school, already degenerate, has a still better prognosis, in proportion to his youth. Physical training, the medical inspection of schools, and the series of reforms I have discussed already under School System(p.31), will do something for it. This is not really treatment, however, but prevention, since we cannot hope that these reforms will take place so as to affect the present school child. They will benefit the child of the future. To advise them for the child of the present regime is a counsel of perfection.

I therefore pass at once to the all-important question of prophylaxis.

MEANS OF PREVENTION

If education in its fullest sense, be, as I conceive it, the provision of a fit environment for the less wise by the more wise, then education sums up all the means of prevention; for the factor of heredity, as I have tried to show, is not materially concerned in the production of the present state of the national physique. The factor of environment is all-important. And the concrete remedy which embodies to the fullest this belief in the power of the environment is certainly the GARDEN CITY. The first remedy is thus co-ordinated with the first true cause I have adduced, *viz. City life.*

The first book to mention in discussing this epoch-making idea is the book in which Mr. Ebenezer Howard first gave it practicable form. The original title of that book was "To-Morrow; a peaceful path to real reform." Subsequent editions have the title "Garden Cities of To-Morrow." (Ebenezer Howard. Swan Sonnenschein and Co.) To him we owe the Garden City Association, to which I believe that every medical man in this country should regard it as a professional duty to belong. At its fifth Annual Meeting, held in London last year, I had the good

fortune to hear Sir John Gorst, who has already done so much for this question of the national physique, and Mr. Malcolm Morris, the Hon. Sec. of the National Association for the Prevention of Consumption. Condemned by the "Times" as "Utopian," the scheme of Mr. Howard has already taken practical effect in the purchase by the Association of the Garden City Estate, near Hitchin, on the Great Northern Railway, thirty-five miles from London. The Secretary tells me that only some question as to the tenure of the land prevented the alternative purchase of ground near North Queensferry: but no one who has looked into the question doubts that such cities will be all over the country ere the century is out. For the purposes of this thesis I paid a visit to the estate, and drove over it. Building has already begun (when this thesis is submitted) and it is hoped that several hundreds of people will be in residence by the end of this year. There will ultimately be thirty thousand persons on an area of thirty-eight thousand acres. The question of feasibility does not fall to be described here. In proof of the contention that I am not submitting an impracticable and visionary remedy

as the chief one in combatting the evils of cities, I need only say that there are competent business men behind the scheme, such as Mr. Cadbury, who has already built Bournville, and Mr. Lever, who has already built Port-Sunlight, and that Mr. Rider Haggard who is not to be judged as a sensational novelist, but is the leading authority on Rural England, has declared himself though formerly sceptical, to be now convinced of the practicability of the scheme. After seeing the estate and studying the plans, I do not hesitate to say that the death-rate of First Garden City will establish a record amongst towns of thirty thousand inhabitants. The capable and brilliant Secretary of the Association is a Scotsman, Mr. Adams, and he has promised me that he will forward the literature of the subject to any medical man who writes to him at the offices of the Association, 348 Birkbeck Bank Chambers, Holborn, London, W.C. He will further be happy to show any medical man over the estate. No purpose can be served by my making quotations here from Mr. Howard's book or the literature of the Association. Both are readily accessible and it is necessary for me only to assert my firm belief that all who can influence public opinion in the matter

of remedies for the present state of the national physique, must necessarily acquaint themselves with the subject. I would just add that - in addition to the obviously sanative advantages of a Garden City - absence of smoke, sunshine, fresh air, outdoor pursuits, total abolition of overcrowding, pure milk and so forth - the question of alcohol has been carefully considered: and the views of Messrs Rowntree and Sherwell have been taken into account. There are public-houses, I find, just outside the limits of the estate. They will be about half-a-mile from the nearest inhabitant - not counting the garden-farmers with their five or ten acre holdings who will occupy the outer zone of the estate. There will be public-houses in Garden City if the result of a plebiscite demands them. The profits of the trade will be entirely devoted to the provision of counter-attractions to the public-house, this being the principle advocated by Rowntree and Sherwell in what is now the standard work on the subject in this language, "The Temperance Problem and Social Reform." When the percentages of an urban working-man's wages spent on alcohol, as quoted in that book, and since confirmed, are compared with Sir William Anson's

statement that sixty thousand underfed children go to school in London every morning, it will be seen that, on this score alone, — the alcohol question — Garden City merits the serious attention of all who study the question of the national physique.

The advocacy of Garden Cities includes the advocacy of many preventive measures which I should otherwise detail. It is the present body-and-soul-devouring city that is really responsible in large measure for smoke, overcrowding, absence of light, bad food, syphilis and many other evils, everyone of which is attacked by Mr. Howard's magnificent idea. But we really do need authoritative medical names on our Council, to help to give ~~the~~ weight with the public. In discussing the causes of physical deterioration I have indicted the City as a whole. Hence in seeking for a true remedy I recommend a new sort of city. I need hardly say that the city kills because of certain of its features: the Garden City will cease to kill and deteriorate because those features will be absent. For instance, I have said hardly anything about the abomination of overcrowding. The British Medical Journal estimates that there are 125,000

overcrowded tenements in London alone. But in indicting the city I indict all that the city includes: We shall not remedy overcrowding except by rebuilding the city de novo. In his speech at the fifth Annual Meeting of the Garden City Association, Sir John Gorst pointed out how urgent the case at present is. The cities are spreading, it is true, because of the improved means of locomotion. Now improved means of locomotion is a type of the sham remedies for physical deterioration. What is the result? Simply, said Sir John, that tenements as bad as ever are springing up everywhere outside the old cities. In other words, improved means of locomotion simply means an enlarged area of overcrowding. There is no true remedy but the Garden City.

Another remedy - or rather prophylactic - which I earnestly advocate is the systematic study of Sociology. Edinburgh has been the pioneer in this country in this matter. The work of Professor Patrick Geddes has lately led to the project of a Sociological Society, which is in process of formation as I write. I am one of only three medical men who at present belong to a society wherein our profession

should take a most important place. The Secretary is Mr. Victor Branford M.A.(Edin) 5, Old Queen Street, Westminster. Such problems as that with which this thesis is concerned can be settled satisfactorily only by scientific treatment. As Comte and Spencer have long ago proved, there is a science of society, and I believe that the medical profession owes a duty to it. I am doing my best to ensure that the question of the national physique shall be early and thoroughly discussed at one of the Society's meetings, and I hope that, by that time, some medical men of standing may have joined our ranks.

This naturally leads on to a remedy which has often been bruited for one evil and another, and of which much, for and against, will be heard in the future. Mr. Francis Galton is to raise the question before the Society in May. Already certain persons have declared that eugenics, or the deliberate mating of the fittest, is the proper remedy for the state of the race. Of course it would be impertinent to dogmatise on this subject, but at any rate it must be faced; and the medical profession, amongst others, must face it. The subject of Eugenics is properly, in modern times, Mr. Francis Galton's, and Mr. Bran-

ford tells me that he hopes to persuade Mr. Galton - who is now an octogenarian and very deaf - to write one more book and that on EUGENICS, to be issued under the auspices of the Sociological Society. Whatever the views of anyone on this subject, he has to face or support formidable protagonists. Before referring to the chief of these I must mention a recent book by a medical man, Dr. R. Reid Rentoul, whose "Proposed Sterilization of Certain Mental and Physical Degenerates" (Walter Scott Publishing Co.) appeared late last year (1903). Dr. Rentoul proposes to apply the theories of EUGENICS in a negative manner, by discouraging the unfit, rather than by encouraging the fit. He would ligature or excise an inch of the Vasa deferentia ^{or} Fallopian tubes in the mentally diseased, and those with organic disease of the principal organs, as well as in weak-minded children and several other classes of the community. Of course there are the very gravest ethical and practical objections to such a course. I need not waste time by enumerating them here, for they are obvious. The point is that Dr. Rentoul represents a section of opinion which is probably destined to grow and with which the profession

will have to deal.

Vastly more serious and important are the views and work of Professor Karl Pearson.F.R.S., whose Huxley Memorial Lecture for 1903, delivered before the Anthropological Institute on October 16. and abstracted in Nature. Oct. 22. 1903 (Macmillan) is of the utmost importance in relation to the whole subject of eugenics. The lecture is entitled "The Inheritance of Psychological and Physical Characters in Man." The result of many years' work on many thousands of children tends to show in Pearson's opinion, that heredity is a factor in the production of human characters, physical and mental, far more potent than environment - which, of course, includes education in its wide and narrow senses. With the details of the lecture I am not here concerned, nor is it necessary here to criticise it. I simply wish to point out that the results of Pearson's work will be accepted by him and by others as a convincing argument in favour of some system of eugenics. My provisional conclusions on this part of the subject are, therefore, that (1) Sociology must be recognized and studied by medical men in relation to the question of the national physique;

(2) Eugenics is at least a plausible prophylactic for the future in relation to this question; (3) A very strong case has already been made out for it by persons of very considerable acumen and authority; (4) Unless the medical profession seriously deals with the subject of this thesis, the invaluable institution of marriage, as now practised, is threatened. Mr Wells, Professor Pearson and others are to be reckoned with. Our responsibility is therefore grave.

A second point may be raised in relation to Sociology, and that is the function of the newspaper in this and similar public-scientific matters. Fortunately I can point to a pertinent instance in illustration of this point. When Dr. Clouston's recent address, before the Medico-Chirurgical Society of Edinburgh, on the development of a "health-conscience" in the community, was reprinted in the British Medical Journal (July 11.1903), its substance struck me as typical of the sort of matter which newspapers will print, and by means of which it is possible for members of the medical profession to be of immense service to the community. Not so long afterwards, I was delighted to see in the

"Scotsman" an article under the heading "Nature and Science", which dealt with this matter and bore the initials T.S.C. I submit that one of the prophylactic means to be adopted in connexion with the prevention of the future deterioration of the national physique is the employment of the public press as a means of educating the community by the medical profession.

After insisting that everything converges upon the Garden City as the true prophylactic, and after going on to urge the systematic study of the question and of all involved in it (viz., the study of sociology) as a second prophylactic, I have simply to enumerate the valid causes and mention the obvious mode of dealing with them: again promising that only in the Garden City can this be adequately done.

Dietetics, in elementary form, must be taught to all children. The parents must be educated, as the authorities of the East London Hospital have done, with the success I have described above. The poor mother does not yet know that using a feeding bottle with long tube in August may be tantamount to manslaughter. The elements of hygiene must be taught

in all schools. Now that we are all signing a petition to the Educational authorities in favour of this measure I need say no more about it.

We must use further means of prevention on the assumption that the earlier the period in the developmental history of a human being the greater its need of care. Therefore, whilst we insist that, in order to prevent physical deterioration, it is necessary to pay more attention to the schoolboy than to the would-be recruit, and more attention to the suckling than to the schoolboy, so we should logically go further and never cease to assert that a woman who is already - being pregnant - doing the most important and difficult work that she can, should be put in such a position that she need do no other work. Belgium, Holland, Denmark, Germany and Austria forbid the employment of women in factories or workshops until four weeks have elapsed after childbirth (British Medical Journal, July 18.1903: p.155): but Switzerland sets an example to the world in decreeing that "total absence from employment in factories, of women during eight weeks before and after childbirth must be observed." (ibid). In other words

we should teach that, as a general rule deduced from the known physiological facts, no pregnant woman should work; just as no child should work. And we should go further, and teach that, as a general rule, no nursing women should work: and no need to work should interfere with the possibility of a woman nursing her child. These may be counsels of perfection. If we taught them as dogma, they would nevertheless favourably influence practice: for our influence is daily increasing. We should assert that pregnant or nursing women are ipso facto working.

More active steps than the mere education of the public have been taken in some places, such as the municipalities of Battersea, Leith and Manchester. I visited the Battersea Milk Depot for the purposes of this thesis, but acquired no new information. The procedure is the same as at other municipal milk stations, the milk being modified, sterilised and packed in little bottles which are not to be returned by the mother once they are opened. I have three criticisms to make on these depots as ideal methods of saving the national physique, though I believe them to be of great temporary value, provided that suitable leaflets are sent out with the milk, as at Battersea.

There it is clearly stated that, for the first few months, no other milk is equal to mother's milk: at least the delusion that any substitute can be as good is not fostered.

The first objection is that this method tends to reduce maternal feeding of children. All sentimental considerations apart, and without reference to the evolutionary theory of the development of human altruism by the exercise of this function, I submit that maternal affection is likely to be fostered by the act of giving suck, and that the state of the maternal affection will often influence, by a hundred means, the future physique of the child.

The second objection is that the sense of parental responsibility must be dulled by these means, and that the child educated and all but fed by the State will need the State's care more hereafter.

The third objection is that the so-called "Humanised" milk provided is not and probably never can be really humanised. In the British Medical Journal of Feb. 27.1904 (p.479) Dr Henry Ashby narrates a case of scurvy in an infant fed on municipal "humanised" sterilised milk. Dr. Ashby refers to the experience

of other physicians. It is quite plain that an "anti-scorbutic principle" is present in ~~human~~^{unboiled} milk which cannot be compensated for by any known modification of ~~non-human~~^{sterilised} milk. This whole question is therefore ^{of municipal feeding} still sub judice.

Physical training will doubtless often prevent the less serious forms of physical deterioration. The associated fresh air and sunshine are of more importance than the exercise. The youth who goes to a muscle culture school to exercise his intervertebrals and similar decadent muscles in a foul atmosphere is laying himself open to worse things than physical deterioration. However, I have attacked this fetich elsewhere.

Medical Inspection of schools has been already referred to. Similarly the prevention of child labour has been hinted at. The liquor question and juvenile smoking must also be tackled in the prevention of physical deterioration. So must overcrowding: but inevitably I am sent back to my first preventive to which all others are subsidiary, -except the education, which will persuade people to adopt it. If we care for physical deterioration and for far worse things which are the gifts of cities as we know them

we must build new and different cities, where the shameful infantile mortalities of the present day will be unknown and where the healthy neonati of a healthy and not decadent race may grow up to be healthy men and women because they have been supplied with a natural and benign environment.
