ON THE PHYSICAL EXAMINATION OF 1,580 GIRLS FROM ELEMENTARY SCHOOLS IN LONDON.*

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THE girls mentioned in this paper are pupils in elementary schools who have obtained scholarships from the Technical Education Board of the London County Council to enable them to continue their education in higher-grade schools. The conditions under which the scholarships are given—the same for the girls as for the boys—were as described by my colleague Dr. Leslie Thorne Thorne in his paper in the BRITISH MEDICAL JOURNAL of April 9th, namely:

"Junior" scholarships are given to pupils in elementary schools in London whose parents' income does not exceed £150 a year, and "intermediate" scholarships to those whose parents are not in receipt of more than £400 a year, or, in half the cases, £150 a year. About 300 junior and 30 intermediate scholarships are bestowed yearly upon girls. Every child, before taking up the scholarship, has to pass a medical examination, partly in order to ensure that none shall receive a scholarship who is not in a fit state of health to profit by it and partly that any cases of physical defect may be reported, so that the necessary treatment may be obtained or recommendations be forwarded to the school which the child is to attend.

The physical examinations which I now summarize have been held twice yearly during a period of five years, and it is not without interest to note how far the results of the examination of the two sexes correspond.

General Appearance.—The girls were arranged in three classes as regards general appearance—good, 60 per cent.; fair, 34 per cent.; delicate, 6 per cent.

Height and Weight.—The following tables show the average height and weight of 1,385 girls from 11 to 15 years of age. The girls examined the first year are not included, as the examination was conducted somewhat differently; girls of 10 and 16 have also been left out, the numbers being too small to be of statistical value. The average weights and heights of the boys, taken from Dr. Thorne Thorne's table, are added by way of comparison.

TABLE I.

Age.	11		12		13		14		15	
	Girls.	Boys.	Girls.	Boys.	Girls.	Boys.	Girls.	Boys.	Girls.	Boys.
Total number examined...	226		815		214		50		79	
Average height	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
...	4 7	4 5½	4 9	4 8½	4 10	5 0	5 1½	5 2½	5 2	5 5
Average weight	st. lb.	st. lb.	st. lb.	st. lb.	st. lb.	st. lb.	st. lb.	st. lb.	st. lb.	st. lb.
...	5 0	5 2½	5 5	5 6½	6 0	6 0	7 1	7 0	7 8	8 0

In the succeeding tables the average heights and weights of the girls I examined are given in centimetres and kilograms, and are compared with similar statistics from schools for girls in various European countries taken from Dr. Axel Key's *Investigations in School Hygiene*. It will be seen that the London girls compare favourably as regards height with all others; as regards weight they are slightly below both the Swedish and the American girls. The latter, however, appear to have been girls in higher grade schools, and therefore would represent probably a wealthier class than that from which our scholars are drawn.

TABLE II.—Average Height in Centimetres.

Age.	L.C.C.Scholars (London).	Quetelet (Brussels).	Bowditch (Boston).	Paglioni (Turin).	Sweden.	Denmark.
11	139.7	130.1	135.7	131.5	137.0	133.0
12	144.9	135.2	141.9	136.7	143.0	138.0
13	147.4	140.0	147.7	142.6	148.0	146.0
14	156.2	144.6	152.3	149.6	153.0	151.0
15	157.4	148.8	155.2	152.6	157.0	154.0

* This paper, read at the International Congress of School Hygiene held at Nuremberg April 4th to 9th of this year, has been slightly altered in form so as to correspond more closely with Dr. Leslie Thorne Thorne's paper on "The Physical Development of the London Schoolboy" in the BRITISH MEDICAL JOURNAL of April 9th, 1904.

TABLE III.—Average Weight in Kilograms.

Age.	L.C.C.Scholars (London).	Quetelet (Brussels).	Bowditch (Boston).	Paglioni (Turin).	Sweden.	Denmark.
11	31.7	25.5	31.23	26.9	31.9	30.5
12	34.8	29.0	35.53	29.5	35.9	34.0
13	38.2	32.5	40.21	34.5	39.6	38.0
14	44.9	36.3	44.65	38.5	44.8	42.0
15	48.0	40.0	48.12	43.8	48.9	46.5

Tables IV and V refer to the circumference of the chest on forced inspiration to the degree of possible chest expansion, that is, the difference between forced inspiration and forced expiration. Dr. Thorne Thorne's tables regarding boys are given for comparison.

TABLE IV.—Chest Circumference on Forced Inspiration.

Inches.	Number of Cases (Girls).	Percentage of Total Number of Cases.	Percentage (Boys).
23—24	6	0.7	0.1
24—25	55	6.1	0.8
25—26	146	16.1	4.8
26—27	256	28.2	13.9
27—28	181	20.0	25.1
28—29	107	11.8	22.5
29—30	76	8.3	13.9
30—31	52	5.7	7.5
31—32	21	2.3	3.3
32—33	7	0.8	2.8
33—34			2.1
34—35			1.2
35—36			0.5
36—37			0.3

TABLE V.—Degree of Chest Expansion.

Inches.	Number of Cases (Girls).	Percentage of Total Cases.	Percentage (Boys).
1—2	42	4.8	1.2
2—3	467	53.0	21.1
3—4	318	36.1	53.5
4—5	45	5.1	22.3
5—6	8	1.0	1.5

Examination of the Chest.—There was no case of serious lung disease of any kind among the girls.

Hearts.—Out of the 1,580 children examined, there were 13 cases (about 8 per cent.) with cardiac murmurs indicative of organic heart disease; 4 of these children had suffered from rheumatic fever, and the cardiac condition was doubtless due to this; the remaining 9 were all children of perfectly healthy appearance, with no further symptoms of cardiac trouble and with no idea whatever that there was anything wrong about the heart. One had had scarlet fever; in the others no history of any disease to which the cardiac condition could be attributed was elicited. In all these cases the murmur was mitral regurgitant. In 34 children (about 2 per cent.) a basal systolic murmur was present, doubtless haemic in character and in most cases due to anaemia. The anaemia was in nearly all the cases of but slight degree.

Spine.—Out of the total 1,580 girls 12 per cent. presented some degree of lateral curvature of the spine. The proportion in the last two examinations was considerably higher, being as much as 22 per cent. I attribute this largely to the fact that at these examinations my attention was specially directed to this point, and that all cases were reported in which, when the girl was told to stand perfectly upright, any degree of scoliosis was observable; whereas, in the earlier examinations, the slighter cases were not included. It is true that in a considerable proportion of the cases the curvature was slight and could be made to disappear by rectifying the position; but even in a large number of these there was already some rotation of the vertebrae, shown by greater prominence of the ribs on one side. There were 5 cases of severe scoliosis with definite bony deformity. One of these was due to shortening of one thigh from old hip disease.

In most of the cases the general muscular development was poor, there was frequently a tendency to anaemia, and many were below the average in weight. It is noteworthy that among the boys very few cases of scoliosis were found. I am of opinion that the poor muscular development of so

many of the girls is the chief cause of the curvature of the spine, and that it calls very strongly for more attention to physical education, and especially for more provision for gymnastics than is found at present in elementary schools for girls. Girls, too, of the lower classes do not as a rule play the same vigorous games as do the boys, or as are played now by girls of the higher classes of society.

Eyes.—There was no case of colour blindness or even of "confusion of colours" among the girls.

Acuteness of Vision.—Out of the total number, 202, nearly 13 per cent. had errors of refraction requiring the use of glasses. Only 39 per cent. of these were already provided with any glasses.

Hearing.—Out of 1,400 cases 117, 8.3 per cent., had defective hearing to some extent. In 80 of these the defect was slight, a watch normally heard at 18 in. being audible at distances varying from 6 in. to 12 in. In 37 cases the defect was considerable, the watch being heard only at less than 6 in., in many cases at less than 2 in. In nearly all these, however, one ear only was affected. In several there was a history of otorrhoea. In no case was the deafness noticeable in ordinary conversation. Contrary to my expectation I found but few of the cases of defective hearing associated with enlarged tonsils or adenoids, they were 13 in all, or about 11 per cent.

Throat and Nose.—Enlarged tonsils, adenoids, or both, were found in 148 cases, nearly 10 per cent. Many of the cases were slight and no treatment was advised. Fifteen cases of adenoids were recommended to undergo an operation. The association with deafness was, as remarked above, very small, being limited to 13 cases. The percentage of enlarged tonsils and adenoids was very much less in the girls than the boys, namely, 10 per cent. instead of 34 per cent. It may be suggested that cases were allowed to pass undetected in the former, but I do not think that this was the case. There was undoubtedly a striking absence among the scholarship girls of the facial signs of adenoids so common in our elementary schools and especially so in the classes for mental defectives—but there too I think more frequent on the whole in boys than girls.

Urine.—Among the 1,580 cases examined 151, or nearly 10 per cent., had albuminuria. This percentage is almost exactly the same as that found among the boys. Only those cases are included in which there was both a distinct cloud on boiling and a definite ring on treatment with cold nitric acid. The amount of albumen varied from a slight cloud to, in a few cases, as much as one-fifth solid albumen. In as many cases as possible the urine was examined a second time at a few days' interval: 82 cases were thus re-examined, in 67 albumen was present on both occasions. I have endeavoured as far as possible to keep the albuminuria cases under continued observation. This has not been always easy, as they are under no obligation to attend any subsequent examination, and opportunities for further investigation can only be obtained as a favour. I have, however, succeeded in making over 300 examinations of the urine in old cases.

Seventy-Three Cases were Examined Three Times.—In 180 (83 per cent.) of the examinations albumen was found. In 9 cases albumen was present at every examination.

Forty-One Cases were Examined Four Times.—Albumen was found in 93 of the examinations (76 per cent.). In 10 cases there was albumen at every examination.

Fourteen Cases were Examined Five Times.—In 57 of the examinations (81 per cent.) albumen was found. In 6 cases albumen was present on each occasion.

The longest time any case has been under observation is five years; 23 cases have been under observation for periods of from three to five years. Of these 23, 10 had albuminuria at every examination, 12 had no albuminuria the last time they were examined (3 of these also had none the last time but one), 1 case was found to have no albuminuria at an intermediate examination, but albumen was present again when last she was seen. The amount of albumen was found to vary a good deal in the same individual at different times. On the whole, the tendency certainly was for the amount to diminish at each subsequent examination, but this was by no means invariably the case.

Causation of the Albuminuria and Health of the Girls.—The majority of these girls were of good general appearance, several were indeed among those who were noted as being specially robust and healthy-looking; 10 were somewhat anaemic, and were among those who were classed as delicate. Albuminuria is said to be common in children of a neurotic temperament, subject to night terrors, somnambulism, or other symptoms of an unstable nervous system.

Certainly by far the larger number of the girls I examined were by no means of this type.

There was a history of scarlet fever or diphtheria in a certain number of cases, but not in a greater proportion than among the whole number of girls examined. In no case was any history of kidney disease given, and in none had the existence of any kidney trouble been suspected. I did not find among them any cases with further symptoms of kidney disease or circulatory disturbance. Enlarged tonsils were present in somewhat greater proportion than among the girls in general, but not to any great extent.

In a few of the cases where the amount of albumen was largest a microscopic examination of the urine was made. No casts were found. I have not as yet found evidence of deterioration of the general health among the girls who have been kept under observation. One girl has had scarlet fever since she was first examined, and informs me she was then told that it was complicated by inflammation of the kidneys. As she appears to have been but slightly ill, the diagnosis was probably due to the pre-existing albuminuria.

The conclusions I have drawn from the very imperfect observations I have been able to make are as follows:

1. In the majority of the cases in which albuminuria was found the condition was not merely accidental and transitory, but was more or less permanent, at any rate for a few years.

2. I find no evidence of consequent deterioration of health so far as I have been able to watch the cases.

3. On the whole the albuminuria tends to diminish, and in more than half the cases had disappeared when they were last seen.

Unfortunately the time during which it has been possible to keep the girls under observation is too short to throw much light on the subject of the ultimate prognosis in these cases of albuminuria. That some will result in nephritis is probable, but the large number of cases in which the albumen has disappeared after persisting for some months or years certainly appears to me to afford some evidence against the theory that albuminuria in the apparently healthy is to be considered in all, or nearly all cases, an early stage of interstitial nephritis. It is, of course, impossible to say that some of the albumen may not have been due to leucorrhoea. The urine in all the cases reported was, however, quite clear, and there was no signs of leucorrhoeal discharge—cases in which there was merely a faint trace of albumen present were on this account not included.

As regards the condition of the girls generally as brought out in these examinations, I think this may be considered satisfactory. The girls as a rule were healthy. Although a considerable proportion might have been better developed in many ways, and a variety of defects were discovered, these were generally not serious, and the falling below the standard of health was not great. The candidates were the picked scholars of the elementary schools; they had all worked hard, and had had to pass a fairly severe competitive examination. The medical examination was interesting in regard to the question as to whether such application to work had injured the health of the scholars, an accusation not infrequently made concerning work in Board schools. In the case of those who came before me—the girls who succeeded—I think the answer was in the negative.

NOTE ON THE OCCURRENCE OF LEISHMAN-DONOVAN BODIES IN "CACHEXIAL FEVERS," INCLUDING KALA-AZAR.

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THE work of Donovan¹ in showing the above parasite-like bodies to be commonly present in chronic fevers in Madras, following very closely on the first description of them by Leishman,² has raised the very important question as to whether some of the cases hitherto known as "malarial cachexia," including the Assam epidemic form of the disease kala-azar, might not be caused by the new parasite. On my recent return to India I was fortunate enough to be placed on special duty to inquire into the prevalence of fevers in Dinajpur (which is one of the districts in which I showed some years ago³ that the Assam epidemic fever took its origin in the early Seventies, owing to five out of six successive years of deficient rainfall). I have, therefore, been able to examine for the new parasite by spleen puncture, with some