

to treat slight surgical cases at the hospital than in the inspection rooms in barracks. The work is done in the dressing-room described above. The system of working is as follows: All cases first attend the medical inspection rooms in the lines. Should the medical officer in charge of the latter consider a man requires surgical treatment, he writes on the sick report "attend station hospital." The man's name is then taken off the sick report and placed on the roster of those attending the hospital out-patient department, and he is kept on this until fit for duty. Cases from distant barracks are brought to hospital in a tonga. About 1,000 fresh cases per annum attend the surgical dressing-room as out-patients, and it has fully justified its establishment.

AN INVESTIGATION TO DETERMINE CERTAIN CHARACTERISTICS IN THE PHYSICAL EQUIVALENTS OF LANCASHIRE RECRUITS.

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My attention has been drawn to the low weights prevailing in this district in normal healthy individuals. This is noticed in school children, e.g., at age 7, although the height is slightly above that seen in children of the same age, taken as a whole, in Great Britain, the weight is very much below that of the average of the whole country. Again, the same thing is seen at age 13, the height at this age being about the same as in children throughout the country:—

Age in years	HEIGHT		WEIGHT	
	Great Britain	Burnley	Great Britain	Burnley
7	44·60	45·60	50·70	45·70
13	55·81	55·10	79·0	75·3

No records are available to compare ages from 14 up to 17.

In the following analysis 918 recruits found medically fit are taken as the sample. They are taken from the periods 1907-11, and the results obtained are compared with the official figures as published by the War Office for the year 1909.

All the recruits under review were born in Lancashire, and were resident in the recruiting area of Burnley and district.

Burnley may be taken as a typical industrial centre having a population of over 106,000, of whom 30,000 are engaged in cotton weaving, over 4,000 in coal mines, over 2,000 in ironworks, and about 2,500 in building and works of construction. Of the 918 recruits under review

33.33 per cent were unskilled labourers (4.9 per cent casuals); 54.47 per cent were skilled labourers (12.85 per cent miners; 31.6 per cent factory workers; 10.02 per cent various); and 12.2 per cent were occupations classified separately.

The town is situated above sea-level, in the lower parts 300 ft. and in higher parts 775 ft. It is built on a clay subsoil and the rainfall amounts to 40 in. The atmosphere is smoky.

The housing is fairly good. Half time labour in the mills prevails. Wages are good.

The conditions seen in the factories are not always conducive to health, *e.g.*, the state of the atmosphere may be dusty or humid with steam, there are extremes of temperature, long standing and over-fatigue have their effects.

The feeding of children and youth is not insufficient, but the food in many cases is highly improper. There is a prevalence of tea-drinking, mostly taken without milk. Pastry, white bread, jam, pickles, &c., take the place of more nourishing articles of diet. Potatoes and fish cooked in fat are common dishes.

Alcoholism and venereal diseases are not prevalent.

The district surrounding Burnley is partly rural and partly urban, and the conditions of life are much the same as in Burnley.

The following investigation deals with an analysis of the "physical equivalents" in recruits passed medically fit.

It will be noted that the variability from the mean is less in Lancashire recruits, and that the weight is less by $4\frac{1}{2}$ lb. as compared with the generality of recruits. It is remarkable that in the school children at ages 7 and 13 a low weight is also seen.

Another remarkable difference will be noted in the fact that although the height, weight and chest measurements are less in the sample of Lancashire recruits under review, the range of chest expansion in the same sample of recruits is greater than in the all-country recruits.

In the following tables an analysis of the physical equivalents in 918 Lancashire recruits found physically fit, and a comparison with the official figures for 1909, with the conclusions derived therefrom, is given:—

TABLE I.—FREQUENCY DISTRIBUTION FOR AGE.

Ages in years	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25	25-26	
Totals ..	2	140	363	178	97	55	34	18	14	17	918
Mean age (Lancashire) ..											19.39 years.
" " (all recruits) ..											19.55 "
Standard deviation of age (Lancashire) ..											1.72
" " (all recruits) ..											1.79

Conclusion.—The Lancashire recruits are slightly younger than the generality of recruits, the difference being 0.16 of a year, or about $\frac{1}{6}$ of the standard deviation. The ages are distributed about the mean nearly alike in both cases, the Lancashire recruit being slightly less in variability from the mean.

TABLE II.—CORRELATION OF HEIGHT WITH AGE.
The frequency of height is shown at each age in this Table.

Heights	AGES IN YEARS										Total at each height	Percentage at each height
	Under 17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25	Above 25		
Under 5 ft. 2 in. ..	1	..	1	1	..	..	..	..	..	..	3	·32
5 ft. 2 in. to 5 ft. 3 in. ..	1	26	40	13	8	3	1	1	..	1	94	10·32
5 ft. 3 in. to 5 ft. 4 in. ..	..	38	81	33	25	4	7	2	3	1	194	21·24
5 ft. 4 in. to 5 ft. 5 in. ..	..	34	90	36	12	8	9	3	3	3	198	21·66
5 ft. 5 in. to 5 ft. 6 in. ..	..	29	58	43	15	12	5	1	2	1	166	18·18
5 ft. 6 in. to 5 ft. 7 in. ..	..	7	44	27	15	10	5	4	2	4	118	11·77
5 ft. 7 in. to 5 ft. 8 in. ..	..	5	29	15	14	6	1	4	..	2	76	8·28
5 ft. 8 in. to 5 ft. 9 in. ..	..	1	15	7	3	7	3	2	1	3	42	4·68
5 ft. 9 in. to 5 ft. 10 in. ..	..	..	3	3	2	4	2	..	3	1	18	2·56
5 ft. 10 in. to 5 ft. 11 in. ..	..	..	1	..	2	1	1	1	..	..	6	·66
5 ft. 11 in. to 6 ft. ..	..	..	..	..	..	..	..	..	..	1	1	·11
6 ft. and upwards ..	..	..	1	..	1	..	..	..	..	..	2	·22
Number of observations at each age	2	140	363	178	97	55	34	18	14	17	..	..

Mean height (Lancashire)	..	..	..	..	..	..	..	..	..	65·10 in.
„ „ (all recruits)	..	..	..	..	..	..	..	..	..	66·22 „
Standard deviation of height (Lancashire)	..	..	..	..	..	..	..	..	..	1·69 „
„ „ „ (all recruits)	..	..	..	..	..	..	..	..	..	2·21 „
Co-efficient of correlation of height with age (Lancashire)	..	..	..	..	..	..	..	..	..	286 ± 0·020 in.
Correction in height for each year of age (Lancashire)	..	..	..	..	..	..	..	..	..	0·28 in.

Conclusion.—The Lancashire recruits are shorter than the generality of recruits by 1·12 in., or half of the standard deviation of all recruits. This is a considerable difference; the less age of Lancashire recruits in this table accounting for only 0·04 in. (i.e., 0·16 × 0·28 in.), leaving 1·08 in. as the balance of difference apart from the difference in age. The variability of height is also considerably less in Lancashire recruits, i.e., the latter are more uniform in height.

TABLE III.—CORRELATION OF WEIGHT WITH AGE.
The frequency of weight is shown at each age in this Table.

Weights	AGES IN YEARS										Total at each weight	Percentage at each weight
	Under 17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25	Above 25		
Under 100 lb. ..	1	..	..	..	..	..	..	..	..	..	1	0·11
100—110 „ ..	1	54	61	7	..	..	..	..	..	..	123	12·32
110—120 „ ..	..	58	142	42	21	12	4	3	2	5	289	31·33
120—130 „ ..	..	20	122	67	31	16	9	3	2	2	272	29·64
130—140 „ ..	..	7	28	43	33	15	13	7	5	3	154	17·79
140—150 „ ..	..	..	6	14	10	7	6	3	3	3	52	5·75
150—160 „ ..	..	1	3	4	1	4	..	1	2	1	17	1·96
160—170 „ ..	..	..	1	1	..	1	2	..	..	1	6	0·66
Up 170 „ ..	..	..	..	..	1	..	..	1	..	2	4	0·44
Number of observations	2	140	363	178	97	55	34	18	14	17	918	100

Mean weight (Lancashire)	.. .. .	122·98 lb.
" " (all recruits)	.. .. .	123·13 "
Standard deviation of weight (Lancashire)	.. .. .	12·29 "
" " " (all recruits)	.. .. .	16·38 "
Co-efficient of correlation of weight with age (Lancashire)	..	0·506 ± 0·017
Correction in weight for each year of age (Lancashire)	..	3·61 lb.

Conclusion.—The Lancashire recruits are lighter than the all-country recruits by 5.15 lb. or by $\frac{1}{3}$ of the standard deviation of the generality of recruits. Allowing for the less age in this table which accounts for ·58 lb. (i.e., $0·16 \times 3·61$ lb.), the characteristic difference in weight amounts to 4·57 lb. Again the variability in weight is less in the Lancashire recruit, i.e., the weight is more uniform than in the all-country recruits.

TABLE IV.—CORRELATION OF MAXIMUM CHEST EXPANSION WITH AGE.
The frequency of maximum chest expansion with age is shown in this Table.

Maximum chest measurements	AGE IN YEARS										Total	Percentage
	Under 17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25	Above 25		
Under 31 in.	1	..	..	..	..	..	..	..	..	..	1	0·11
31—32 in. .. ..	..	..	..	..	..	..	..	..	..	..	14	1·52
32—33 " .. ..	..	11	3	..	..	..	..	..	..	..	150	16·34
33—34 "	1	56	84	7	1	..	1	..	..	..	229	24·86
34—35 " .. ..	..	39	124	40	15	5	3	..	..	3	258	28·20
35—36 " .. ..	..	23	106	63	28	21	6	6	3	2	133	14·48
36—37 " .. ..	..	9	27	36	30	12	9	5	2	3	76	8·28
37—38 " .. ..	..	1	16	21	10	7	9	2	6	4	57	6·21
Above 38 in. .. ..	..	1	3	11	13	10	6	5	3	5	..	..
Number of observations at each age	2	140	363	178	97	55	34	18	14	17	918	..

Mean maximum chest expansion (Lancashire)	.. .. .	35·37 inches
" " " " (all recruits)	.. .. .	35·73 "
Standard deviation of maximum chest expansion (Lancashire)	..	1·41 "
" " " " (all recruits)	..	1·60 "
Co-efficient of correlation of maximum chest expansion (Lancashire)	.. .. .	0·547 ± 0·016
Correction in maximum chest expansion for each year of age (Lancashire)	.. .. .	0·449 inches

Conclusion.—The Lancashire recruits are less by 0·36 in. or $\frac{1}{4}$ of the standard deviation of the all-country recruits in maximum chest expansion. Of this 0·07 in. ($0·16 \times 0·449$) is accountable to age, the difference being 0·29 in. as the characteristic defect. The variability differs less than in the other previous measurements.

TABLE V.—CORRELATION OF MINIMUM CHEST EXPANSION WITH AGE.
The frequency of minimum chest expansion is here shown at each age.

Minimum chest measurement	AGE IN YEARS										Percentage at each age	
	Under 17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25	Above 25		Total
Under 31 in.	1	35	22	1	..	..	..	..	..	..	59	7.43
31-32 " " " " " "	1	54	106	12	6	3	1	..	..	..	183	19.94
32-33 " " " " " "	..	34	127	61	19	11	4	1	1	5	263	29.76
33-34 " " " " " "	..	11	63	53	35	20	8	9	3	2	174	19.96
34-35 " " " " " "	..	6	34	32	19	6	14	3	4	5	123	12.42
35-36 " " " " " "	..	..	9	13	16	9	5	1	5	1	59	7.43
36-37 " " " " " "	..	..	2	5	1	4	2	2	1	..	17	1.96
37-38 " " " " " "	..	..	..	1	1	..	..	..	..	2	4	.44
Above 38 " " " " " "	..	..	..	..	..	2	..	2	..	2	6	.66
Number of observations at each age	2	140	363	178	97	55	34	18	14	17	918	..

Mean minimum chest expansion (Lancashire) 32.99 in.
 " " " " (all recruits) 33.41 "
 Standard deviation of minimum chest expansion (Lancashire) .. 1.45 "
 " " " " (all recruits) .. 1.33 "
 Co-efficient of correlation of minimum chest expansion (Lancs.) .. 536 ± 0.016 in.
 Correction in minimum chest expansion for each year of age (Lancs.) 0.452 in.

Conclusion.—The Lancashire sample of recruits is 0.42 in. in defect or $\frac{1}{3}$ the standard deviation of recruits in general, 0.07 of which (i.e., 0.16×0.452) being accounted for by age, leaving a difference of .35 as the characteristic defect. The variability in this instance is rather greater in Lancashire recruits.

TABLE VI.—CORRELATION OF RANGE OF EXPANSION WITH AGE.

Range of expansion	AGE IN YEARS										Total	Percentage
	Under 17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25	Above 25		
Under $2\frac{1}{2}$ in.	1	27	75	30	22	7	1	4	2	2	171	18.66
$2\frac{1}{2}$ " " " " " "	1	59	138	62	30	17	16	7	4	4	338	36.73
3 " " " " " "	..	44	112	64	27	24	14	3	5	6	299	32.47
Upwards of 3 in. . . . .	..	10	38	22	18	7	3	4	3	5	110	12.14
Number of observations at each age	2	140	363	178	97	55	34	18	14	17	918	..

Mean range of expansion (Lancashire) 2.93 inches
 " " " " (all recruits) 2.73 "
 Standard deviation of range of expansion (Lancashire) .. 0.49 "
 " " " " (all recruits) .. 0.59 "
 Co-efficient of correlation of range with age (Lancashire) .. 0.093 ± 0.022
 Correction in range for each year of age (Lancashire) .. 0.026 inches

Conclusion.—The same sample of Lancashire recruits has a greater range by 0.2 inches or $\frac{1}{5}$ of the variability of the all-country recruits. The difference of age would make the range 0.004 inches less (i.e., 16×0.026), so that the characteristic difference is slightly over 0.2 inches. The variability is again considerably less.

Summary.—In the sample of Lancashire recruits under analysis, in comparison with the all-country recruits, the *age* is less by $\frac{1}{10}$, the *height* less by $\frac{1}{2}$, the *weight* less by $\frac{1}{2}$, *max. chest* less by $\frac{1}{4}$, *min. chest* less by $\frac{1}{3}$ of the standard deviation, but the *range of expansion* is *greater* by $\frac{1}{3}$ of the standard deviation.

The variability from the mean is also less in the Lancashire recruit in each measurement except in that of the *min. chest*, in which it is rather greater.

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A CURIOUS CASE OF FEVER IN CALCUTTA.

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THE patient (aged 22; service four years; service in India two years) was an inmate of the Station Hospital, Calcutta, and was the subject of much discussion. The disease was contracted at Jaffarpur Musketry Camp, near Barrackpur, a few miles from Calcutta. The man was admitted to hospital on the day of his return from the camp to Calcutta. He was then obviously very ill. The conjunctivæ were injected and his face was dusky. A few days after admission a rash appeared; this covered the face, extremities and body, it was of the nature of a subcuticular mottling, which at first glance suggested measles. The rash persisted, small pinkish spots also appeared on the chest and abdomen. The bowels were constipated. The man became notably dull and apathetic with a congested look about the face. Clearly this was no ordinary case; a "dangerously ill" report was sent in. Clinicians who judged by the patient's odour said it must be enteric, but a blood-culture did not afford any aid in forming a diagnosis. A note appears in the case sheet, "eyes have a heavy appearance and are red and watery." The condition became graver, urine was passed in bed, the catheter had to be used frequently, delirium set in. Then there was a sudden fall of temperature, followed by collapse necessitating intravenous