at this level. Since the theca of the little finger is continuous with the main bursa it is obvious that the nervous and vascular supplies of the ulnar border of that finger must cross the sheath. The vascular and nervous supplies of the radial side of the index finger cross the proximal end of the theca of that finger deep to the palmar crease in this situation. The thumb sheath is deeply buried as it passes between the muscles of the thenar eminence. It is important to note that this sheath is crossed superficially by the branches from the median nerve which supply these muscles.

(To be continued)

A COMPARISON OF PHYSICAL STANDARDS IN TWO GROUPS OF NEWCASTLE CHILDREN

BY

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Investigations into the physical standards of sample groups of school children of various social classes have shown in most instances that the children of the upper classes are taller and heavier and have blood richer in haemoglobin than children of the poorer type; while Spence has shown that in Newcastle there was a wide difference between the health and development of the infants in his sample group of "city children" and the similar group of "professional class children" which he examined.¹

The present investigation was carried out in an endeavour to assess the result of an improvement in environment at an early age on one of two groups of children of strictly comparable heredity. The most hopeful approach seemed to be in comparing, by the same individual technique as that used by Spence, a group of slum children with children living in the physically favourable environment of an orphan institution, the latter having a heredity comparable to, and certainly no more favourable than, the former. The group chosen were the seventy-five children between the ages of 5 and 14 years residing in the Newcastle Education Committee's Ponteland Children's Home—the "Ponteland children"—and a similar number of children of identical age and sex distribution attending the Jubilee Street Council School, situated in a poor part of Newcastle—the "Jubilee children."

The difference in environment may be inferred from the fact that the Ponteland children were living in a pleasantly situated self-contained village some miles from Newcastle, eating a diet costing an average of just over four shillings and sixpence a head per week (and purchased *en bloc*), which was properly balanced and included meat at least once a day and an average of just under one pint of fresh milk daily. The parents of 50 per cent. of the Jubilee children were unemployed, and these children were presumably eating a diet costing at any rate not more than three shillings per week which the Unemployed Assistance Board provides for all the necessities of life; with, in addition in certain cases, free milk daily and in a very few cases (not 5 per cent.) free meals. On inquiry not more than 10 per cent. of the Jubilee children had eaten protein of any kind at their midday meal on the day of examination—broken biscuits appeared to be a staple article of diet.

The two groups of seventy-five children were carefully examined by me with reference to their general condition, their height, weight, and chest measurement, their teeth, and their haemoglobin indices.

The Ponteland children were not admitted to the home until the age of 3, and no accurate information was obtainable about their environment during the first three years of life. All that can be said of these early years, which are shown to exert a crucial influence on the later development of the children, is that they were spent in the large majority of cases either in a Poor Law institution or under very unfavourable conditions of life outside. It seems improbable, however, that under normal conditions any more sharply defined groups as regards environment will be obtainable.

The assessment of general condition was of course subjective, but I endeavoured to take into account colour, muscle tone and stance, skin temperature, and general alertness.

General Condition

	Ponteland	Jubilee
Optimum (children in every way fit) ..	37	7
Poor (children obviously unfit)	1	9
Others	37	59

For comparisons of weights and heights optimum zones were made by weighing and measuring several hundred children in Newcastle high schools and preparatory schools, plotting their weights and heights on graphs, and constructing zones to include the large majority. Separate zones were made for boys and girls, but for convenience of reference the results are here grouped together:

	Heights		Weights	
	Ponteland	Jubilee	Ponteland	Jubilee
Children above optimum zone	0	0	0	1
Within	24	19	10	15
Below optimum zone	51	56	65	59

As will be seen, the children of both groups fall almost completely below the optimum zones of the "high-school" children. When the zones used were based on the figures of the British Association's Anthropometric Committee (1875-83), employing the committee's average as an upper limit and a line 10 per cent. below this as the lower limit of the zone, the Ponteland and Jubilee children are seen to fall very well within these limits and show no significant discrepancy—that is to say, the difference between the weights and heights of the high school and the Ponteland children is of the same order as that between the high school and the Jubilee children.

	Heights		Weights	
	Ponteland	Jubilee	Ponteland	Jubilee
Above B.A. average zone ..	12	17	20	18
Within	61	57	40	46
Below	2	1	15	11

It is of interest to note that when the weights and heights of the high school group were plotted against these B.A. zones the following results were obtained.

	Heights		Weights	
	Ponteland	Jubilee	Ponteland	Jubilee
Above average zone	93 per cent.		84 per cent.	
Within	7	"	16	"
Below	0	"	0	"

¹ Spence, J. C. (1934): *Investigation into the Health and Nutrition of Certain of the Children of Newcastle*, Newcastle.

Quite evidently the British Association Anthropometric Committee's averages, assessed as they were from the measurement of children preponderantly of the poorer classes, should be taken not as normal weights and heights but rather as depressed averages.

The chest circumference measurements, taken in full inspiration, were recorded on the case-sheets, but in my opinion they depend so much on the enthusiasm of the examinee as to be valueless.

Examination of the teeth revealed what I believe to be significant differences.

	Ponteland	Jubilee
Perfect dentition: No caries or history of caries	8	2
Hypoplasia, with no gross caries or history of caries	15	3
Gross caries or history of caries	52	70

These figures show that twenty-three of the Ponteland children were free from caries, as against only five of the Jubilee children. In addition, active extensive caries (four teeth or more involved) was present in six of the seventy-five Ponteland children, as opposed to twenty of the seventy-five Jubilee children. The most significant differences, however, appeared in the haemoglobin indices (estimated by the Sahli haemoglobinometer—standard = 14 grammes per 100 c.cm.).

Hb percentage	Ponteland	Jubilee
Above 85 per cent.	13	1
70 to 85 per cent.	58	47
Below 70 per cent.	4	27
Below 65 per cent. (also showing clinical anaemia)	0	6

Conclusions as to the significance of the differences recorded in dealing with such small groups of subjects must of necessity be tentative. Briefly, while the weights and heights of the two groups showed no appreciable difference, both being distinctly suboptimum, the general condition, the teeth, and the haemoglobin indices of the slum children were distinctly inferior to those of the children's home group.

These facts suggest that although improvement in environment after the age of 3 had led to distinct improvement in general condition, teeth, and blood, it was without effect on subsequent growth. It would appear that such growth was decisively affected by conditions during the first three years of life, and that subsequent improvement in environment did little to modify this. But the improved conditions of the Ponteland children in other respects did seem to be accompanied by a heightened resistance to disease, and as a community the children's home appears to have a suggestively low incidence of illness. On these and other grounds weight and height *per se* seem to be falling into increasing discredit as indices of health.

Summary

A comparison of a group of school children from a poor part of Newcastle with a similar group from a children's home revealed that although the weights and heights of the two groups showed no appreciable difference and were both suboptimum, the general condition, the teeth, and the haemoglobin indices of the children's home group were distinctly superior to those of the slum children.

I wish to thank the various education authorities and individuals who so kindly facilitated the collection of the data used; and Dr. J. C. Spence for his constant stimulation and advice.

THE MEDICAL PROFESSION AND NATIONAL DEFENCE

DUTIES OF DOCTORS AND NURSES

The following announcement was made by the Ministry of Health on Tuesday night:

The Ministry of Health is receiving inquiries from doctors and nurses asking what they would be expected to do in the event of hostilities. Some already have commitments to the Forces or to the A.R.P. or other public services. Those who are not committed in this way but are attached to hospitals would no doubt be required there, and should in any case keep in touch with their hospitals.

Doctors and nurses in private practice may be able to afford valuable assistance in local air raid precautions schemes, and if they are willing to help in this way they should get into touch with the medical officer of health. They may also be required for treating casualties in their own homes.

The British Medical Association, at the request of the Government, has compiled a register of doctors who are prepared to serve in various capacities, and use will be made of this register for importing doctors into a district where there is urgent need of additional medical assistance. Any doctor who has not yet responded to the inquiries from the British Medical Association should do so without delay, and if he does so he will, when need arises, be told where and in what capacity his services are required.

Until similar machinery is instituted for the nursing profession, any nurses who are willing to offer their services but are not in touch with hospitals should enrol with the local branch or head office of the College of Nursing, whether they are members or not. This applies only to State-registered or certificated nurses, including those who have given up practice.

There is no need for doctors or nurses to offer their services directly to the Ministry.

HOSPITAL ACCOMMODATION FOR AIR RAID CASUALTIES

The following statement on hospital accommodation for air raid casualties was issued by the Ministry of Health on September 22.

The Ministry of Health has made rapid progress in organizing the hospital system to meet any emergency that may arise, and it is now possible to give a general picture of the proposals.

Hospital authorities were told by the Ministry in August that they would be expected, if an emergency actually occurred, to empty as many beds as possible by sending home those patients who are fit to go. It is estimated that most hospitals would be able to clear between 30 per cent. and 50 per cent. of their beds in this way. No hospital is expected to take any step of this kind until asked to do so by the Ministry, and it is unnecessary to say that no such request has yet been made. The majority of patients going home would be sitting or walking cases, and hospitals have been asked to arrange for transport of their cases themselves by means of voluntary effort. The Women's Voluntary Organization would help in this work. Once at home discharged patients would, of course, come under any general arrangements for evacuation for their districts.

Simultaneously with sending patients home, certain hospitals, for the most part the larger general ones in the more congested areas, would "decant" patients fit to be moved, though not yet fit to go home, to other institutions which are fully capable of continuing the