[Report 1939] / Medical Officer of Health, Newcastle-upon-Tyne City & County.

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CITY AND COUNTY OF NEWCASTLE UPON TYNE

ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH

ON THE

Sanitary Condition of the City

DURING THE YEAR

1939

Printed by Christie, Malcolm, Ltd., Charlotte Square, Newcastle upon Tyne.—C4 12/1

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CHARLOTTE SQUARE, NEWCASTLE UPON TYNE

Members of Council who served on the

HEALTH COMMITTEE.

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Alderman David Adams, J.P., M.P., Vice-Chairman.

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,,	A. E. Bedson.	,,	J. Pearson, J.P.
,,	Violet H. Grantham.	,,	R. M. Rowe.
,,	Cath. A. Locke, J.P.	,,	T. Sweeney.
,,	H. Moat.	,,	Emilie F. Davison.

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‡ ,,	Jeanie L. Gibbin, O.B.E., J.P.		

* Member of the Health Committee.
† Co-opted member.
‡ Appointed by City Council.

To Alderman WALTER THOMPSON, J.P., Sheriff of the City and County of Newcastle upon Tyne, Chairman of the Health Committee of the Corporation.

SIR,

The changed conditions under which we are all living and working at the present time, obviously necessitated some alteration in the preparation and production of the Annual Report on the Sanitary Condition of the City during the year 1939. In consequence, the detailed and tabulated statements of the activities of the Health Department, and the records of morbidity and mortality which in previous years have constituted the Annual Report, are for a space, at any rate, replaced by a shorter commentary. Nevertheless, in order that there shall be no gap in the sequence of our records, all the facts and figures which have found place in earlier reports have been compiled and will be preserved for future publication.

In the present document, an attempt will be made to set out such of the Vital Statistics as can be made available, to summarise the most important features of the year's work and to offer comment where comment would appear to be called for.

The Vital Statistics.

In presenting the principal statistical rates, we labour under considerable disabilities. The evacuation of women and children, whether carried out under the organised Government Schemes, or independently thereof, caused a material reduction in the population of the City, and materially affected its normal age and sex distribution. Furthermore, owing to the migration of expectant mothers, many Newcastle children were born in areas outside the City, and the full tally of these is probably not yet known. Nevertheless, despite these unusual difficulties the Registrar General has prepared his annual statement, or rather estimate, of the various statistical ratios upon which we are wont to base our opinions as to the health and fertility of the inhabitants of the City.

Marriages and the Marriage Rate.

During 1939, no fewer than 3,125 marriages were contracted—an increase of 517 upon the preceding year. One must go back to times of similar gravity and emotional impetus to find comparable

figures. But even the year 1914 was less productive in marriages, and it was left to 1915 to achieve the record of 3,264 marriages, which has never been exceeded. Calculated in the usual fashion, the Marriage Rate for 1939 was 21.4.

War was at one time associated with a reduction in the marriage rate, and William Farr, the Medical Adviser to the Registrar General, drew attention to this phenomenon in the Report for 1845, but that vigorous yeoman Englishman knew also how periods of national enthusiasm increased the number of marriages. Here are some of his robust sayings, which read well in these times :—

> " The marriage returns in England point out periods of prosperity little less distinctly than the funds measure the hopes and fears of the money market. If the one is the barometer of credit, the other is the barometer of prosperity, present in part, but future, expected, anticipated in still greater part."
>
> " The nation is sometimes extraordinarily sanguine. A statesman of genius, like Lord Chatham, produces the same confidence in a country as the presence of a Cæsar, Napoleon or Wellington on an army. Great victories, the joys of peace, large financial or political measures—raise public feeling to a state of exaltation. Such periods of exaltation are almost invariably accompanied by an increase in the number of marriages."
>
> " And thus England has hitherto held on her way through ages ; sometimes prosperity has shone on her, and all the winds have been favourable ; then heaven has been clouded, or the gulf-streams of time have carried her aside, or adversity has hung over her ; but amidst all the vicissitudes and chances of the voyage, her true onward glorious course has still been held."

The Birth Rate.

There is little to be said regarding the birth rate, which at 15.8 per 1,000 of the population was slightly lower than in the previous year, when a rate of 16.1 was registered. Compared with the rates for England and Wales as a whole (15.0) and for the 126 Great Towns (14.8) we continue to maintain the north country tradition for relatively high fertility.

The General Death Rate.

From the birth rate we turn, somewhat inappropriately perhaps, to the death rate. Here we find there has been a moderate increase ; the rate for 1938, namely 12.4 per 1,000, having advanced to 12.7 in 1939. It is no longer practicable to make the accustomed comparison with other cities and county areas, but from such information as is available it is clear that our relative position has not changed materially. In this matter, as in many others, we are still better than the worst, and some little distance removed from the best.

Mortality from certain special causes.

A review of the individual causes of death presents some interesting changes. Table I. sets out the variations which have occurred both in incidence and ranking during the past three years. Three points are worthy of particular notice. In the first place, it is clear that there is no challenge to the pre-eminence of heart and vascular disease as a cause of death. Steadily, year by year these diseases are responsible for one-third of all our mortality. Secondly, the advance of cancer from third to second place, is real and not merely apparent. The number of deaths attributed to this disease has increased, so that 1939 shows the largest total yet recorded, and this despite the fact that our facilities for treatment were greater than ever. Against this must be set the knowledge that our population in those age groups which can be regarded as " cancer prone " was also more numerous that at any previous time.

The Registrar General in the text of his Statistical Review for the year 1937, discusses the distribution of the various forms of cancer according to geographical locality, and compares the respective records of a number of the large towns and other areas in England and Wales. The figures for Newcastle are included with those of the two Northern Counties, there being no significant difference in the mortality from cancer of various sites between the City and the region as a whole. The outstanding fact, which cannot be stressed too strongly, is that mortality from cancer of the uterus is materially greater in this area than in any other part of England and Wales. On the other hand, the death rates from cancer of the breast is lower in the North than elsewhere. Here then is a particular problem for local investigation—the causation of our high mortality from uterine cancer. Its solution will require the co-operation of many branches of the medical and scientific professions—general practitioners, obstetricians, surgeons, radio-therapists, physicists, and statisticians. But even if complete solution is denied to us, an improvement in the present results will yield a gratifying return in terms of human life and comfort and happiness.

Finally, the most astonishing feature of the table is the retreat of bronchitis and pneumonia from the second place to the fourth. Whereas in 1937 there were 420 deaths from these diseases, in 1939 there were 275. The quota has been reduced by one-third in two years. A closer analysis of the respiratory diseases, which includes the group " Bronchitis and Pneumonia," shews that the

TABLE I.

PART I.

SHEWING THE RELATIVE POSITIONS OF THE FIVE CHIEF CAUSES OF DEATH IN NEWCASTLE DURING THE YEARS 1937, 1938 AND 1939.

	1937.	No.	Percentage of Total Mortality.	1938.	No.	Percentage of Total Mortality.	1939.	No.	Percentage of Total Mortality.
1.	Diseases of the Cardio-vascular System	1,316	34.0	Diseases of the Cardio-vascular System	1,216	33.5	Diseases of the Cardio-vascular System	1,278	34.9
2.	Bronchitis and Pneumonia	420	10.8	Cancer.....	444	12.3	Cancer.....	457	12.5
3.	Cancer.....	389	10.1	Bronchitis and Pneumonia	347	9.6	Diseases of the Nervous System	289	7.9
4.	Tuberculosis of the Respiratory System	270	7.0	Tuberculosis of the Respiratory System	249	6.9	Bronchitis and Pneumonia	275	7.5
5.	Diseases of the Nervous System	231	6.0	Diseases of the Nervous System	233	6.4	Tuberculosis of the Respiratory System	232	6.3

reduction in mortality has been highest in the case of lobar pneumonia, where it is equivalent to 50%.

Maternal and Infantile Mortality.

Turning now to Maternal and Infantile Mortality, there are important facts to be noted regarding both of these. As compared with 1938, when 16 maternal deaths were recorded—22 deaths were reported in 1939 as being due to diseases of pregnancy, childbirth and the puerperal states. This is equivalent to a total maternal mortality rate of 4.78 deaths per 1,000 live and still births, which is approximately 80% higher than the national experience in 1939. Actually our local rate represents a considerable retrogression on the previous year when the rate was 3.30 per 1,000.

Of the 22 maternal deaths in 1939, seven were due to puerperal sepsis, and the mortality rate from this one particular cause—namely, 1.46 per 1,000 live and still births—is definitely in excess of the similar rate for 1938 which was 1.03 per 1,000. As regards the other causes of death amongst pregnant and parturient mothers, abortion, puerperal hæmorrhage and the toxæmias of pregnancy were the important factors.

It cannot be denied that this increase in puerperal mortality both from sepsis and other causes is distinctly disquieting. Much of the mortality could undoubtedly be prevented, and should be prevented. Excuses may be found in the disturbance of the normal hospital and district organizations which were occasioned by the outbreak of war, the consequent closing of hospital accommodation, and evacuation of midwives. But excuses are not enough, and it will be necessary to keep under the closest possible supervision every constituent functioning element of the City's maternity services.

After this somewhat depressing survey of maternal mortality, it is highly gratifying to be able to record that the infantile mortality was the lowest ever recorded in the City—namely, 62 per 1,000 live births. Even now the local rate is higher than the national one of 50 by 24%, but a comparison with even so recent a year as 1937, when the infantile mortalities for Newcastle and England and Wales were respectively 91 and 58, shows that encouraging improvement has been achieved. The fall in the infantile mortality is due in the main to a marked reduction in the incidence and fatality of the respiratory and bowel infections. Our Child Welfare Services would hesitate to claim that they had played any considerable part in the reduction and control of the respiratory diseases, but they can assert that their well organised and wisely

directed campaigns—both educational and practical—for the improvement of infant feeding are now reaping their reward. At the time of writing, certain proposals have been made by the Ministry of Health and the Ministry of Food for nationalisation of milk distribution, which will make it difficult to maintain that improvement.

During the year 1939, steps were taken to carry out a detailed enquiry into every infantile death, the results of which will be published in due course. This investigation was undertaken by the Senior Child Welfare Medical Officer (Dr. F. J. W. Miller, M.R.C.P., D.C.H.), with the close co-operation of the pædiatricians and general practitioners of the City. To all these we must express our gratitude for their interest and assistance. The need for such " ad hoc " investigations of a local character is constant and they should be regarded as one of the primary functions of an active and keen Child Welfare Department.

Infectious Diseases.

The notifiable infectious diseases, excluding tuberculosis, but including other infectious conditions to which notification does not apply—influenza and diarrhœa—were responsible for 278 deaths as compared with 391 in 1938 and 564 in 1937. Reference has already been made to one group of notifiable diseases whose yield of mortality has been considerably diminished—namely, the pneumonias. One other contributing factor in the outstanding reduction in infectious mortality was the falling off in deaths from influenza and diarrhœa.

Of the common infectious diseases which at one time held pride of place—diphtheria was notified less frequently—253 cases in 1939 as contrasted with 415 in 1938—and caused 10 deaths instead of 23. Measles was notified as affecting 466 patients and was responsible for only two deaths. Both notifications and deaths were the fewest ever recorded. The incidence and mortality of scarlet fever also established minimal records—only 374 cases were notified. There was no mortality.

As a matter of interest, these mortality figures should be compared with the peak years of the past. Measles attained its maximum in 1885 with 359 deaths. The record for scarlet fever was established in 1866 when 500 patients died from the disease. It may be that public health authorities are not entitled to proclaim these changes as due to their activities, but whatever may be the real reasons for these prodigious improvements—whether variation in bacterial virulence, or altered modes of living amongst the

susceptible population—there is cause for gratification that so many lives have been saved. It is the fashion in these days to deny, whenever possible, the good effects of environmental improvement upon the public health, and to advance the view that there is no complete proof that any of our measures of amelioration in that direction have contributed to the admittedly improved health of the population. One can only point out with regret that in those slum areas where the old conditions linger, infectious disease continues to exact its tribute, if not in deaths, at any rate in bad health and ill-nurture amongst the children of our people. The irresistible, though inanimate claimants for attention when the present war is over, will include the miserable areas of old and decrepit and derelict property which still house too many of our folk.

The General Morbidity.

Much nonsense has been written as to the beneficial effect of war upon the health of the community, and the marked improvement therein which was evident immediately after the outbreak of hostilities. Such statements reflect the opinions of consulting physicians and surgeons and are based upon the returns of their consulting rooms, which, no doubt, were less frequented. The general hospitals also were virtually closed for a short period in September, 1939, but this of itself did not abate the incidence of appendicitis or moderate the frequency with which duodenal ulcers perforated. Life went on and the common real diseases still manifested themselves. If anything disappeared or diminished it was that galaxy of fashionable and imaginary disorders which flourish amongst many men and women of all grades of society.

War does not add either to the health or the welfare of any nation engaged in its prosecution, and any light-heartedly expressed opinion to the contrary is utterly wrong. We must prevent and provide against the ravages which war will make upon the health of all grades of the population—upon children and women, artisans and black-coated workers, labourers and loungers alike. Every one of our health services should be maintained—as far as may be humanly possible—at the highest pitch of their preventive efficiency.

Nutrition.

The Health Committee in times past has sponsored several investigations into the health and nutrition of the City's population. One of the earliest of these was carried out by Dr. J. C. Spence, F.R.C.P., in 1933, when the health and nutrition of certain groups

Table II.

Average Death Rates per 100,000 *in England and Wales and Newcastle upon Tyne during the Twelve Year Period* 1927-1938. (*Based upon the Registrar-General's Abridged List of Causes of Death.*)

No.	Causes of Death.	England and Wales.	Newcastle upon Tyne.	Newcastle as a per-centage of England and Wales.
(1)	(2)	(3)	(4)	(5)
	All causes	1,210	1.291	106.7
	*Infantile Mortality	62.4	82.5	**132.2**
1.	Typhoid and paratyphoid fevers	0.7	0.7	100.0
2.	Measles	7.2	14.8	**205.5**
3.	Scarlet Fever	1.5	2.6	**173.3**
4.	Whooping Cough	6.6	9.1	**137.9**
5.	Diphtheria	7.7	5.7	74.0
6.	Influenza	32.7	25.5	78.0
7.	Encephalitis lethargica	2.2	3.1	**140.9**
8.	Cerebro-spinal fever	1.9	4.4	**231.6**
9.	Tuberculosis of respiratory system	67.8	98.1	**144.7**
10.	Other tuberculous diseases	18.2	22.5	123.6
11.	Syphilis	3.3	7.1	**215.2**
12.	General paralysis of the insane, tabes dorsalis	4.5	6.4	**142.2**
13.	Cancer, malignant disease	152.4	143.6	94.2
14.	Diabetes	15.4	15.3	100.0
15.	Cerebral haemorrhage, etc.	66.1	54.5	82.4
16.	Heart disease	259.0	248.1	95.8
17.	Aneurysm	3.4	4.2	123.6
18.	Other circulatory diseases	61.7	95.3	**154.5**
19.	Bronchitis	53.5	53.6	100.2
20.	Pneumonia (all forms)	77.2	92.3	119.6
21.	Other respiratory diseases	12.5	12.5	100.0
22.	Peptic ulcer	10.6	11.0	103.8
23.	Diarrhoea, etc. (under 2 years)	9.8	20.4	**208.2**
24.	Appendicitis	7.2	5.8	80.6
25.	Cirrhosis of liver	3.7	3.4	92.0
26.	Other diseases of liver, etc.	6.3	7.5	119.0
27.	Other digestive diseases	†	†	†
28.	Acute and chronic nephritis	38.0	44.5	117.1
29.	‡Puerperal sepsis	1.5	1.8	120.0
30.	‡Other puerperal causes	2.4	2.8	116.6
31.	*Congenital debility, premature birth, etc.	31.9	35.3	110.6
32.	Senility	45.2	26.7	59.1
33.	Suicide	13.0	11.8	90.8
34.	Other violence	42.0	39.7	94.5
35.	Other defined causes	†	†	†
36.	Causes ill-defined or unknown	†	†	†

* The rates for these headings are per 1,000 live-births.
† Not extracted.
‡ The rates for these headings are per 1,000 live-births for 1927 and per 1,000 live and still births 1928 and onwards.
Death rates which are equivalent to 125 per cent. or more of the similar rates for England and Wales are indicated in heavier type.

of children between the ages of one and five years were the subject of enquiry. The conditions then disclosed were such as to awaken in the minds not only of the inhabitants of Newcastle, but amongst people of goodwill in all parts of the country, a more liberal conception of our communal responsibilities to the young child. Marked differences were demonstrated in the state of nutrition and physique and also in the health records of children of the professional classes on the one hand, and of children from working class homes on the other. In the latter group, no fewer than 36% of the children were found to be unhealthy or physically unfit.

It was felt that a repitition of this enquiry, after an interval of some years, might serve to indicate whether progress, stasis or retrogression had followed upon the increased activities which had been instituted in the Child Welfare Department from 1934 onwards. Accordingly, an investigation on similar lines was planned for the Winter and Spring of 1938–39, and the results are now published as an addendum to this present report (Appendix A). The investigators—Dr. E. G. Brewis, M.R.C.P., D.P.H., Dr. George Davison, M.R.C.P., and Dr. F. J. W. Miller, M.R.C.P., D.C.H.—are to be congratulated on their efforts. But the results, which, in the main, confirm Dr. Spence's earlier findings, cannot be regarded with equanimity. After five years many members of a completely new generation of young Newcastle children from working class homes present once again the evidence of imperfect health and defective nourishment.

The Tuberculosis Services.

The mortality from tuberculosis is notoriously high on Tyneside; and Newcastle, though escaping more lightly than some of its neighbours, suffers heavily from the disease both as regards incidence and mortality. The death rate from pulmonary tuberculosis in our City is higher by 45% than the average for England and Wales (Table II.). Similarly, the mortality rate for the other forms of the disease is 24% in excess of the national average.

With this information in our possession and having in the forefront of our memories the knowledge that tuberculosis is one of the pestilences which war-time fans into flame, it was decided that any reduction in the scope of the organisation which has been built up for the detection and treatment of the disease should be, at the most, of a limited and temporary character. No other decision was possible in view of the fact that many of the well-established preventive measures and activities—slum clearance;

the maintenance of hygienic conditions in factories ; the institution of a reasonable working day ; the supervision of the milk supply—would either cease altogether or would, at any rate, be modified to meet the demands and exigencies of the war effort. Accordingly, though the total of the accommodation for patients has been reduced slightly, owing to the difficulty of providing adequate air-raid protection, there has been no diminution in the facilities provided by the Dispensary and visiting services, and the Tuberculosis Officer continues to keep a close supervision on the whole situation. The tuberculosis mortality rates for 1939 were respectively 0.82 per 1,000 population for tuberculosis of the respiratory system and 0.17 per 1,000 for the other tuberculous diseases. The former is the lowest death rate for pulmonary tuberculosis ever recorded in this City, but it should be compared with the rate of 0.532 per 1,000 which was the rate for England and Wales in 1938. The non-pulmonary death rate was about the average for the preceding three years. It stands to be compared with the national rate for 1938 of 0.103.

Though our disparity with the national rates for tuberculosis is a matter for report and concern, we can obtain some measure of satisfaction from the fact that 35 years ago the death rate from non-pulmonary tuberculosis which was then 0.83 per 1,000, was higher than our present death rate from the pulmonary disease itself. Again contrasting 1939 with 1909, our *total* tuberculosis mortality is now one-half of what it was thirty years ago. But the national death rate from tuberculosis has fallen by 66% in the same period, and that difference is the measure of our deficiency, and should set the standard for our watchfulness.

Venereal Diseases.

The outbreak of the war brought many difficulties upon the venereal diseases services. The clinic was deprived, almost immediately, of the assistance of a number of its male orderly staff, who happened to have obligations to fulfil with the armed forces. The military authorities adopted as their standards of cure for the commonest venereal disease—gonorrhœa—criteria less stringent than those usually required by the civilian clinics. The Ministry of Health while advocating an increase in the facilities for treatment and extension of propaganda and educational activities, found itself unable to contribute towards the cost of such activities.

Here, then, were a set of problems sufficient to exercise the ingenuity and administrative capacity of the Clinical Medical Officer

and to try the patience of the Committee. By the end of 1939, some headway had been made, and there was little to indicate any increase in the incidence of venereal disease amongst the civilian population. But the experience of the first half of 1940 has been less satisfactory, and there are indications that gonorrhœa is more common amongst the female population. The Clinical Medical Officer and the medical staff of the Joint Committee's Clinic will do their utmost to anticipate and stem the ravages of the anti-social diseases, but the prospects of success would be brighter if the Military Authorities could be persuaded to be more co-operative and the Ministry of Health more open-handed.

The Newcastle General Hospital.

The Newcastle General Hospital had the high privilege and honour of a visit from their Majesties, the King and Queen, on February 21st, 1939. In times as troubled and crowded with events as the present, it is pleasant and gratifying to look back upon that visitation and to recollect the vivid impression of friendliness which their Majesties made upon all with whom they came in contact. The buildings chosen for the tour were the New Children's Department and Deep Therapy and Radium Institute, which can be fitly described as worthy of the occasion. Even in these days of paper shortage, the two illustrations (following page 24) which accompany this report can be regarded as justifiable reminders of a red-letter day in the history of the hospital.

Later in the year—on August 10th, the New Maternity Unit was opened by the Chairman of the Hospitals Committee (Alderman J. E. Scanlan, O.B.E., J.P.). It is surprising that in all the long years of his association with the hospital, Alderman Scanlan had not hitherto been called upon to undertake this office, but the Unit which he opened will be a continuing memorial of his work. At the present time it is not practicable to give photographs or plans of this building, but it can be said that its 30 beds and the services therein provided have proved so popular that the available accommodation is fully booked many months in advance. The Unit was recognised by the Central Midwives Board as the Post-Graduate School for Midwives for the North of England, but after the initial course in August, 1939, the scheme was suspended for the duration of the war.

The general activities of the hospital were vigorously maintained and despite the partial closure of many wards immediately after the outbreak of war, the turn-over of the hospital was greater than in any previous year. The facts are recorded in Table III.

TABLE III.

Year.	Admissions.	Operations.	Maternity Cases.
1930	3,048	596	97
1931	3,598	1,125	99
1932	4,522	1,428	161
1933	4,776	1,560	194
1934	5,544	2,076	225
1935	6,245	2,722	273
1936	6,707	2,722	388
1937	7,801	2,719	545
1938	8,354	3,388	694
1939	8,469	3,476	811

It is clear that the amount of work now carried on in the hospital will necessitate, even in war-time, additions to the consulting staff. Fortunately, such additional requirements have been anticipated and the creation of the necessary posts approved already by the City Council.

No new clinical developments were introduced during the year under review, but the special departments for Neuro-surgery, Thoracic Surgery, Fever Therapy and Prostatic Surgery, continued their good work.

Regionalisation.

The first important step towards the regionalisation of the Public Medical Services was taken in March, 1939, when the Ministry of Health decanted a large proportion of its establishment of Medical Officers upon the provinces.

Regional offices were established in five different areas and each was staffed by a Principal Regional Medical Officer and a number of assistants. The functions of these officers were never defined very clearly, and it is an open secret that the exodus was not viewed with approval by the medical staff of the Ministry. Such explanation as was offered by the administrative side of the Ministry (as contrasted with the medical section) related this move to the need for finding additional accommodation in the Whitehall offices for the expanding lay staff. As an explanation it lacks cogency.

With the outbreak of war, there came into existence the more complete scheme of regionalisation, which divided England into ten Civil Defence Regions, each under a Regional Commissioner. The Ministry of Health and the Ministry of Home Security were partially decentralised and a section of each, under a Senior Regional Officer, was assigned to every Regional Headquarters. The Senior Regional

Officer of each Ministry is assisted by an administrative and technical staff. In the case of the Ministry of Health, two of the most important sub-sections deal respectively with the Health and Sanitary conditions of the area, and with the Emergency Medical Services.

The Regionalised Ministries exercise many—though not all—of the functions of the Central Departments, but their main purpose is to provide a shadow administrative organisation which would be able to operate independently of London, should events so determine.

So much for present necessities, but it will be helpful to recapitulate something of the history of the idea of Regionalisation in so far as it affects this area.

There is nothing new in regionalisation and schemes which embodied and combined decentralised central government on the one hand, with co-ordinated local administration on the other have been suggested, on and off, throughout the present century. The problems of the Distressed Areas focussed attention on the disparities of resources and of services which existed, and still exist under our present patchwork of Local Government. Of the several enquiries which were instituted into these matters, one of the most important was undoubtedly that of the Royal Commission on Tyneside Local Government. In 1935, the Health Committee of the City prepared a memorandum of evidence for submission to the Royal Commission. Therein it advocated and exemplified the application of Regionalisation to the two Northern Counties. During the subsequent discussions which arose out of the Reports of the Commission—and it will be remembered that the majority report adopted almost "in toto" the suggestions of the Health Committee—the idea of regionalisation on a democratic basis, was never lost sight of. But both Majority and Minority reports were subtly and dexterously consigned by the Central Departments to that limbo which is paved with good intentions and the inconvenient proposals of Royal Commissions. The Minister of Health announced in September, 1937, that if anything were to accrue from the Reports of the Royal Commission, the proposals must originate from local authorities themselves. This unexpected decision sounded the knell of any progress towards a more rational form of Local Government in the Tyneside area.

The Royal Commission had sat primarily to determine how the overlapping and redundancy amongst the 13 Tyneside authorities might be resolved; it had noted during its sittings that a spirit of independence animated even the smallest of these bodies, and it had assumed that the gordian knot woven from the strands of local patriotism and jealousy could only be cut by the Government itself. In

these circumstances, the members of the Commission might be pardoned for imagining that their efforts and recommendations had been somewhat stultified, no doubt unintentionally, by the proclamation of the Minister.

It is pertinent to note that the recommendations of the Majority Report of the Royal Commission envisaged a democratic form of Regional government in which an elected Regional Council would have played the leading part. The form of Regional government which was established in this area on the occasion of the war consists in the superimposition of an immediate system of ministerial control and oversight upon the ordinary framework of Local Government. Despite some propaganda to the contrary, it is not likely to survive the wartime emergency. But it behoves us to consider what form of regionalisation, if any, may succeed it. Obviously, a democratically elected Regional Council does not find favour in Whitehall as the appropriate instrument of regional government. The possibility remains that only certain services—Education, Transport, Health and Hospitals, for example—may be removed from the control of the existing local authorities. After these amputations, the local authorities may be allowed to exercise their remaining functions such as they are, while experiments, on a regional basis, would be made with the severed branches.

Of recent years, Boards and Corporations, such as the Milk Marketing Board and the British Broadcasting Corporation, have made their unobtrusive appearance. With their nominated membership, they can hardly be regarded as democratic instruments of government, but it may be that they will be taken as models for the Regional Education and Hospital Boards of the future.

That the population of the Northern Counties would benefit from a unification of the various educational systems and hospital arrangements which now exist, is a truth generally acceptable. It remains to be seen whether any form of regional organisation other than one based on democratic principles, would enjoy the approval and confidence of the local authorities, and of the populations they represent and serve.

Civil Defence.

The whole of our activities during 1939 were coloured and conditioned by the prospect of war. September saw the realisation of those anticipations.

Actually, our labours in the matter of Civil Defence began as long ago as 1936; were suddenly accelerated in the late summer of 1938 and thereafter continued at an unhurried and steady pace until the

storm broke. It is questionable whether the early months of 1939 were used to the best advantage. Many activities were put in train, but most of them suffered deceleration at the hands of the Ministries of Health and Home Security.

In several instances the advent of war compelled the Health Committee to take instant action in matters which had been for many months the subjects of leisurely consideration by Government departments. Perhaps the Health Committee should have been more pertinacious in its demands upon the Ministries, but it is difficult to see how it could have been.

The reasons for the delay in the central departments are easily traceable. Firstly—the departments were asked by the Government to undertake at the relatively short notice of a year or 18 months, a task of herculean proportions. Secondly—the task was placed upon the willing shoulders of lay officers, who though versed in the gentle exercise of administrative functions, were quite unfitted to act executively in realms where detailed knowledge and experience of a host of highly technical subjects, ranging from military engineering to hospital organisation and equipment, were constantly in demand. The officers of the Ministries toiled unceasingly and heroically at their enormous labours. But this was a case where industry and heroism were not enough. Finally—though of first importance—Treasury control, unimaginative and unimpressed by any sense of emergency, imposed an effective obstacle against every seeker after the short cuts which might have led to speedier action.

Our special war-time measures will be discussed under three heads—Evacuation; First Aid Services; and Emergency Hospital Organization.

Evacuation.

The Health Department was concerned with the evacuation of three categories of individuals—expectant mothers, pre-school children, cripples—but its responsibility in respect of the second group was limited to those children under the age of five years who accompanied expectant mothers. The arrangements for the first category consisted in the provision of a billeting area in Carlisle and North Cumberland, from which mothers were removed, about a week or ten days prior to the anticipated date of confinement, to an Emergency Maternity Hospital which had been established at the Gilsland Convalescent Home. This hospital was under the clinical and administrative charge of the Maternity Officer (Mr. Linton M. Snaith, M.S., F.R.C.S., M.R.C.O.G.) who was assisted by a party

of Municipal Midwives and certain senior personnel loaned by the Princess Mary Maternity Hospital.

At the institution of the scheme, 1,049 expectant mothers registered for evacuation. In the event, 611 were evacuated on the appointed day (September 2nd) and of these only 199 were confined at Gilsland or in other Maternity Homes or private houses in the reception area. The remainder, 412 in all, returned to Newcastle undelivered. Large scale evacuation commenced and ceased on September 2nd and efforts to persuade the Ministry of Health to allow further evacuation were for a prolonged period altogether unsuccessful. The results of the Evacuation Scheme were undoubtedly disappointing to everyone concerned, but it was equally disconcerting for unevacuated expectant mothers and local authorities to learn that the opportunity afforded on the 2nd September would not again be offered. The Health Committee was anxious to build up an organization under which mothers could have been encouraged to regard evacuation to the country for the month before and after confinement as a normal event; a period of preparation and of recovery in safe and agreeable surroundings. The potentialities of such a scheme are considerable and their development is worthy of post-war consideration. Ultimately the suggestions of the Health Committee were not entirely fruitless, for in February 1940, five months after the first evacuation, the Ministry of Health approved a " trickle " evacuation, under which mothers are accommodated for the period of their confinement only at the Dilston Emergency Maternity Home, Corbridge.

The scheme for the evacuation of cripples was intended to remove from vulnerable areas persons, whether children or adults, whose physical defects or incapacity denied them complete freedom of movement, and thereby placed them at a disadvantage in the event of air-raids. A certain degree of independent mobility was required of the cripples to qualify them for inclusion in the scheme—bed-fast or helpless patients being thus excluded.

Applicants for admission in the scheme, numbering 384 in all, were medically examined and their suitability for evacuation determined. Of those examined, 125 were certified as suitable for evacuation, but only 77 proceeded to the reception areas in Westmorland. It was soon apparent that the term "cripple" held a different meaning for some of the hosts of the evacuees, than had been assigned to it by the fashioners of the scheme. A great deal of pressure was brought to bear upon the officers of the Health Department to declare that a number of the cripples had been improperly included in the evacuation lists. This pressure was resisted on the strength of the medical

examination. In the end, however, to meet objections and to mitigate the disappointment of the hosts and hostesses, a number of the cripples were transferred to Rounton Grange, a Hostel which had been established by the Stokesley Rural District Council for this particular type of case. Of all the classes of evacuee which the Health Department has had to deal with, the cripple has shown himself the most appreciative of the benefits provided.

First Aid Services.

The details of the comprehensive First Aid organization in which are included First Aid Parties, First Aid Posts, Decontamination arrangements and Ambulance Services, are recorded in Appendix B. Only a few additional words of commentary are necessary. The slow rate of recruitment of personnel for these services had been a matter of great concern in the immediate pre-war period. The whole and part-time establishment assigned was admittedly a large one, namely 970 for First Aid Parties, 1,045 for First Aid Posts, and 1,161 for Ambulance Drivers and attendants—but the actual strengths were much below this establishment. The First Aid Parties for example, mustered only 150 men at the outbreak of war. With the introduction of the whole-time weekly wage of £3 for males and £2 for females, the position altered materially for the better. Nevertheless, the type of recruit who presented himself, particularly for the First Aid Parties, was such as to make it obvious that careful discrimination would be necessary. Again, the engagement of the full authorised establishment of whole-time personnel would have involved the Government in a weekly wage bill of £4,780 or an annual outlay of £248,560. Such an expenditure upon a hastily recruited and untrained organisation would have been difficult to justify. Accordingly, steps were taken to place recruitment upon a selective basis as far as possible, and to formulate plans for the intensive training of all who volunteered.

The training of those members of the First Aid Party personnel who had passed the medical examination was carried out at an "ad hoc" training school which was established at Elswick Hall First Aid Post.

The whole-time personnel of the First Aid Posts were obtained by choosing suitable individuals from amongst the part-time volunteers attached to the various posts.

As a result of these procedures, in which selection, intensive training, and survival of the fittest, all played a part, a reliable

nucleus was obtained for each Service. As time passed, changes inevitably occurred amongst the male personnel, but the high standard aimed at in the first instance has been well maintained. In December, 1939, the early extravagant establishments were drastically pruned by the Ministries of Home Security and Health. The new establishments are given in Appendix B.

Educational activities were not limited to the members of the First Aid Parties and Posts. The Ambulance Officer (Mr. T. Brooke Davison) continued the routine training of drivers, and in addition, inaugurated classes in running repairs and maintainance, which were particularly useful.

The medical practitioners attached to the First Aid Posts in their turn undertook a systematic course of instruction in War Medicine and organization. In short, the late Autumn of 1939 was a period of diligent and painstaking preparation for all concerned.

It would be ungrateful to conclude this section without a tribute to three voluntary workers who, from slender beginnings, built up and raised to their own high standards of efficiency, the splendid First Aid and Ambulance organizations which now serve the city. Mr. G. R. Curry, devoted ungrudgingly almost the whole of his leisure during the twelve months immediately preceding the war to the fundamental work of training the First Aid personnel. To him, as the original First Aid Commandant, we shall always be indebted for unselfish work zealously and faithfully carried out. His successor—Dr. Gavin Muir—brought not only great professional experience, but capacity and keenness to bear upon the varied difficulties which rapid recruitment imposed upon the First Aid Services. With his assistance, the complex problems of co-ordinating the First Aid Services with the general Civil Defence scheme, as operated in this City, were simplified and solved. We owe an equal debt of gratitude to Mr. T. Brooke Davison, who has created in Newcastle, by dint of hard work and assiduous organization, an Ambulance Service, second to none in the Region.

Emergency Hospitals.

If the war had broken out in October, 1938, the Emergency Hospital Service would have been organized on a basis very different from that which was ultimately adopted. At that time, some 28 Military hospitals were due to be opened, and the institutions foreshadowed under the Emergency Hospital Scheme of the Ministry of Health would have been provided for civilian casualties only.

Between the two periods of crisis and emergency, higher policy was changed fundamentally. We entered into war—as surely

no other people in Europe have set out to confront it—with a hospital organisation scheduled to accept every type of sickness and casualty from civilian and service sources alike. It has been suggested that the motive responsible for the introduction of the " common " hospital was the desire to avoid the competition for medical personnel which was stated to have characterised the war of 1914-1918. It is questionable whether the possibility of such competition between the Services, the Emergency Hospitals and the General Public, has, in fact, been obviated, and one might suggest with pertinence and propriety that the elaborate form of organisation which the Emergency Hospital Service had been obliged to evolve for its better functioning makes unduly heavy inroads upon the time and energy of its medical personnel.

It is easy to criticise many of the efforts of the lay officers of the Ministry who were charged with the responsibility of fashioning the scheme. Their lack of acquaintance with local conditions and their dogmatism on certain points of medical and surgical practice—for example, their curious thesis that surgeons would not be operating during an air-raid—were undoubtedly trying to the members of the Health Committee who submitted representations on such matters. But it cannot be denied that their industry and their devotion to the duty assigned to them were worthy of the highest praise. On the other hand, one is entitled to say that everything that is provided by the Emergency Hospital Scheme (and much is now provided and of the highest standard of quality and efficiency) could have been provided by other methods, without the cumbersome machinery, the embroidery of administration, and the wastefulness of personnel.

The details of the local arrangements, as regards emergency hospital provision, medical and nursing staffing, are assembled in Appendix B. A few additional words regarding the two municipal institutions which figure in the scheme will suffice.

At the Newcastle General Hospital, the bed accommodation was considerably increased by " crowding " and by the incorporation of portions of Elswick Grange. A grand total of 1,635 beds was achieved in this way. Several of the wards in Elswick Grange were subjected to a process known as " upgrading " whereby certain additional requisites such as bathrooms, sluice rooms, duty rooms, kitchens, were provided. Experience showed that much of the upgrading was inadequate and that the " crowding " of beds had been carried to excess. By the end of 1939, both these faults were in a fair way towards rectification.

Two reinforced operating theatres were erected to replace the highly vulnerable permanent theatre suite. Prior to construction, these theatres were the object of several discussions with the officers of the Ministry, but for the history of this somewhat colourful episode, reference should be made to the City Council Proceedings for July 26th, 1939.

In the re-organization which followed the inception of the Emergency Hospital Scheme in September, 1939, the hospital lost for the time being, two of its important clinics—those of Neurosurgery and Thoracic Surgery— which were transferred to the Gateshead Emergency Hospital, Stannington. In both cases the out patient clinics continued at the General Hospital so that to a certain extent the old associations were maintained.

The staff of the hospital, both medical and nursing, were augmented to meet the potentialites of the emergency. In particular, the Matron of the hospital (Miss D. R. Gibson) and her assistants undertook the training of large bodies of Nursing Auxiliaries, who, when trained, passed on to complete the establishments of other hospitals.

Finally, a very complete organization was brought into being for the reception, sorting, resuscitation and distribution of air-raid casualties. In all these activities the Medical Superintendent (Dr. G. P. Harlan) had at his disposal the varied experience and considered advice of a keen and energetic consultant staff.

The City was peculiarly fortunate in that its Mental Deficiency Colony at Shotley Bridge readily lent itself to conversion into an emergency hospital. The transformation was effected late in August 1939, and although approximately 150 mental defectives remained in outlying villas, the bulk of the accommodation from that date onwards was allocated to hospital purposes. Work on the hutted portion of the hospital was commenced in August, 1939, and was far from complete by the end of the year. Nevertheless, the 350 beds comprised in the main building were rapidly adapted for the reception of air-raid casualties. Four emergency operating theatres were provided and a combined X-Ray Department and Reception Unit were improvised in a ground floor dormitory. Simultaneously three large houses, outside the hospital grounds, were taken over and equipped as hostels for the nursing staff. The duties of Medical Superintendent at Shotley Bridge were assumed by Dr. G. F. Duggan who was transferred from the Newcastle General Hospital for the purpose. Dr. Duggan was largely responsible for the re-organization which was effected and would be the first to acknowledge the assistance he received

from Miss H. L. C. Yates, who acted temporarily as Matron of the Emergency Hospital also. At a later date, Miss Yates was recalled for duty with the Colony and her place was taken by the Matron of the City Hospital for Infectious Diseases—Miss J. L. Watt.

At the outbreak of war, a nucleus nursing staff was provided from the City Hospital for Infectious Diseases, the Newcastle General Hospital and the Civil Nursing Reserve, and this staff was steadily increased during the later months of the year. It was not until November 9th, 1939, however, that the first patient was admitted. The record of the further development of the Shotley Bridge Emergency Hospital, and of the specialist clinics established there, belongs rather to 1940 than to 1939.

A special word of thanks is due to the City Architect (Mr. R. G. Roberts, F.R.I.B.A.) who carried out expeditiously and with all the careful planning and efficiency, which we have learnt to associate with his department, the various structural works and adaptations which were required at Shotley Bridge.

Conclusion.

And so, Sir, to the final paragraph of this report, wherein it is customary to recognize ones indebtedness and to return thanks.

Here and there in these records it may have seemed that vent has been given to feelings of disappointment and frustration. But dissatisfaction and criticism, wherever manifest, have been directed not at individuals, but at those forces which, blindly and unintentionally no doubt, have prevented more from being done in shorter time. The general eagerness to press forward, shared by you Sir, and by every member of the Committee and Department, merits no blame. It has been more than a privilege to have served together in these days and to have done something towards preserving and maintaining the health and welfare and safety of our fellow citizens.

I would ask you, Sir, and the members of the Health Committee to accept my most grateful thanks for all the kindness, consideration and encouragement which have been given to my staff and to myself. And finally, I would again mention how much is owed

personally by myself to the whole staff of the Department and particularly to Dr. E. F. Dawson-Walker, Dr. F. J. W. Miller and Mr. A. Hedley. Their cheerful co-operation and patient helpfulness, which have been constant and unflagging throughout, have made a heavy burden lighter and a long road easier to travel.

I am, Sir,

Your obedient servant,

J. A. CHARLES,

Medical Officer of Health

Health Department,

Town Hall,

Newcastle upon Tyne.

December 1940.

Visit of Their Majesties, King George VI and Queen Elizabeth
to the Newcastle General Hospital, February 21st, 1939.

Visit of Their Majesties, King George VI and Queen Elizabeth to the Newcastle General Hospital, February 21st, 1939.

Appendix A

INVESTIGATION INTO THE HEALTH AND NUTRITION OF CERTAIN OF THE CHILDREN OF NEWCASTLE UPON TYNE BETWEEN THE AGES OF ONE AND FIVE YEARS (1938-1939).

By E. G. Brewis, M.D., M.R.C.P., D.P.H., George Davison, M.D., M.R.C.P., D.C.H., and F. J. W. Miller, M.B., M.R.C.P., D.C.H.
(*From the Child Welfare Department, Newcastle upon Tyne*)

The investigation upon which this report is based was undertaken at the invitation of the Health Committee of Newcastle upon Tyne and of Dr. J. A. Charles, Medical Officer of Health.

Our object was to compare the states of health and nutrition of a representative sample of children from the poorer districts of Newcastle upon Tyne in the winter 1938–1939 with those of a similar group examined by Dr. Spence in 1933.* In addition we compared the findings in the children we examined with "normal" standards, and attempted to correlate our findings with the social circumstances of the children. We adopted as "normal" standards those used by Dr. Spence, and the investigation followed closely on the lines of his, with certain additions that seemed desirable.

In all 138 children were examined; a careful medical and social history was taken of each child, and, in addition to physical examination, skin tuberculin tests, hæmoglobin estimations, and radiographs of wrist and chest were undertaken. We have not repeated in the present investigation the examination of children of the professional classes undertaken by Dr. Spence, assuming that the findings in such a group would not have altered appreciably over a period of 5 years.

It is a pleasure to record our indebtedness for help readily given. To Dr. J. C. Spence; to Dr. A. J. Smith and Mrs. E. M. Goldstone of the Newcastle Dispensary; to Miss G. B. Cameron and her Health Visiting Staff; and to Dr. G. P. Harlan and the Staff of the Newcastle General Hospital without whose help the investigation would not have been possible.

Although the examination of the children and the initial drafting of this report were shared equally by the three authors, the subsequent absence on active service of Dr. E. G. Brewis renders the final form and the conclusions the responsibility of the remaining two.

Groups of Children.

As only a relatively small number of children was examined, care was taken to make the group as representative as possible. Only children who were presumed healthy and who had undergone no recent severe illness were included. As far as possible, the groups were chosen in a manner identical to those of Dr. Spence, and were as follows :—

1. Children attending two Child Welfare Centres in two of the poorer districts of the City (the same Centres from which children were referred to Dr. Spence in his investigation).
2. Children attending a Salvation Army Sunday School.
3. Children whose parents were attending the Casualty Department of the Newcastle Dispensary.

No attempt is made to deal separately with these groups in the investigation; they were chosen simply to give a fair cross section of children from the poorer districts of Newcastle, and are considered together as the "City" group of children.

* Investigation into the Health and Nutrition of certain of the children of Newcastle upon Tyne between the ages of one and five years. (Special report published by the Newcastle Corporation Health Department, Town Hall, Newcastle upon Tyne 1933.)

History.

The subjects of enquiry, taken from the case sheet used, are shown as given in an attached Schedule (page 11). In each case the history was taken by one of us and checked by a Health Visitor who visited the child's home with a duplicate sheet. The family history, including any possibility of contact with tuberculosis, was taken, followed by an assessment of the social circumstances, including housing, employment, income, and money spent on food. The last figure was the most difficult to obtain ; in the first place enquiry was made into expenditure on all kinds of food and an estimate obtained ; secondly, all other sources of expenditure were considered (see Appendix), these were added together and then subtracted from the total income ; finally similar calculations were made on the findings of the Health Visitor. In the majority of cases the figures reached tallied sufficiently for our purpose, but in a few they were so inconsistent that they could not be used. Finally, a personal history of the child, with special reference to birth history, diet, previous illnesses, and any institutional treatment, was taken.

Clinical Examination.

This was undertaken as follows :—

1. Estimation of general condition and nutrition. This, depending so much as it does on the personal element of the observer, was the least satisfactory part of the examination.

2. Measurement of weight and height with all clothing removed.

3. Routine physical examination, including palpation of the epiphyseal junctions, inspection of the teeth and throat, and otoscopic examination.

4. Chemical and microscopic examination of the urine.

5. Hæmoglobin estimation. In order to ensure uniformity of results this was undertaken in every case by one observer (G.D.). A Sahli-Leitz hæmoglobinometer was used, and an interval of two minutes allowed to elapse between mixing and diluting. Owing to the lack of daylight—much of the investigation being carried out late on winter afternoons—artificial light was used in every case. Miss Nellie Henderson, B.Sc., of the Physiology Department, King's College, Newcastle upon Tyne, kindly carried out an oxygen capacity estimation on a sample of blood which was then used to standardise the instrument and technique employed. From this it was calculated that a reading of 100% was equivalent to 15 gm. hæmoglobin per 100 cc. of blood. Owing to difference of actual instrument and technique our hæmoglobin figures are not strictly comparable with those of Dr. Spence.

6. Radiography. A film of the right wrist and antero-posterior and lateral films of the chest were taken.

7. Skin tuberculin reaction. The Mantoux technique was adopted with a dose of 0.1 mgm., except in the first ten cases in which 0.01 mgm. dose was given in error. The readings were taken by the Health Visitors.

RESULTS.

We propose now to give briefly the facts elicited by questioning and examination, and later to discuss their significance.

Social Circumstances.

Employment. In 64 cases the father was employed, and in 62 unemployed. In 12 cases no assessment was possible, the father being in partial employment, the parents separated and so forth. In Dr. Spence's series 22 were employed, and 103 unemployed.

Housing. Over the whole series the average number of persons per room was 1.8.

18 children belonged to families with over 2.5 persons per room, 10 to families with 2.5, and 110 to families with less than 2.5.

Dr. Spence did not investigate housing conditions in all his cases, but out of 72 children 13 belonged to families with 2.5 persons per room and 31 to families with over 2.5.

Weekly outlay on food. We have considered this in relation to the scale published by the British Medical Association in its " Report of Committee on Nutrition " (1933). The aim of this Committee was " To determine the *minimum** weekly expenditure on foodstuffs which must be incurred by families of varying size if health and working capacity are to be maintained, and to construct specimen diets." The scale in the report gives the weekly figure for each member of the family with reference to sex and age.

In order to correct the scale for living costs at the time of the investigation we obtained the current prices of the various foodstuffs in Newcastle upon Tyne in February, 1939, and used them to produce a scale for Newcastle, February, 1939, which is as follows :—

Adult male	6/7	per week.
Boy over 14 years	6/7	,,
Adult female	5/5	,,
Girl over 14 years	5/5	,,
Child 12–14 years	5/11	,,
,, 10–12 ,,	5/3	,,
,, 8–10 ,,	4/8	,,
,, 6–8 ,,	3/10½	,,
,, 3–6 ,,	3/9½	,,
,, 2–3 ,,	3/8	,,
,, 1–2 ,,	3/4	,,

In order to allow for inaccuracy inevitable in assessing the weekly expenditure on food, we assumed that all families falling within a zone of 2/- above or below the calculated British Medical Association figure (corrected for Newcastle, February, 1939) spent the minimum weekly sum compatible with health and working capacity.

The results obtained from these calculations were as follows :—

Above scale	Families of 19	children.
Within ,,	,, 17	,,
Below ,,	,, 97	,,

In 5 cases no assessment was possible.

Although Dr. Spence makes no reference to the weekly expenditure on food, Dr. Charles, in his " Observations arising out of the Investigation," pp. 23–25, discusses this aspect fully and gives his opinion that " it is still certain that in many of our poorer homes child and adult alike have an inadequate dietary." Our findings above show that this is as true in 1939 as in 1933.

* Our italics.

Personal History.

43 children were breast fed for one month or less ; 17 for over one month but not over 3 months ; 9 for over 3 but not over 6 months ; 69 for over 6 months.

103 of the children had been vaccinated, and 29 immunised against diphtheria.

The incidence of infectious fevers was as follows :—

Measles	51
Pertussis	32
Chicken Pox	13
Diphtheria	3
Dysentery	2
Mumps	2
Scarlatina	1

As regards respiratory illnesses, 2 children were said to have had tonsillitis, 12 bronchitis and 14 pneumonia, but in the absence of any confirmation of diagnosis these figures can be looked on only as approximate. They are, however, of a similar order to those given by Dr. Spence (125 children : measles 46 ; bronchitis 32 ; pneumonia 17).

Other diseases of an infective nature given in history were abscesses in 7, impetigo in 3, running ear in 1, and operation for mastoiditis in 1. Two children had had tonsils removed.

One child had had an operation for intussusception, and later an appendicectomy ; two had had hernia operations ; two had had "fits," one a prolapse of rectum, one severe burns, one jaundice, one asthma, and one erythema nodosum. Further reference to this last case will be made later.

General Condition.

Judging by appearance, stance, colour, muscle tone and quantity of subcutaneous fat, we deemed 83 of the children (60%) satisfactory and 55 (40%) unsatisfactory. In view of our previous remarks on the personal factor in this evaluation, we shall not comment further on these figures or attempt to compare them with those of Dr. Spence.

Weight.

In a diagram later in the paper the weights of the children are plotted in relation to the normal zone constructed by Dr. Spence. This zone includes the "normal" weight lines of Holt, Bowditch, British Anthropometric Committee and Board of Health weight lines. The weights of the "City" children relative to it are as follows :—

Above	21.....	15%
Within	54.....	39%
Below	63.....	46%

We can compare these findings with those of Dr. Spence in 1933 for a similar group of City children and for a "Professional Families Class."

	"City" Children 1938.	"City" Children 1933.	"Professional Class" 1933.
Above	15%	11%	48%
Within	39%	34%	39%
Below	46%	55%	13%

Height.

The figures for height, treated in a similar manner are :—

Above	3.....	2%
Within	84.....	61%
Below	51.....	37%

Comparing these results with those of Dr. Spence's investigation :—

	"City" Children 1938.	"City" Children 1933.	"Professional Class" 1933.
Above	2%	2%	25%
Within	61%	51%	70%
Below	37%	47%	5%

Physical Examination.

In routine physical examination the following abnormalities were noted :—

59 children (43%) had carious teeth. In one child the teeth had been extracted. As a dental mirror and probe were not used minor degrees of caries may have been missed.

6 children had gross enlargement of the cervical lymph nodes. We have not recorded the presence of " shotty " glands, which were found in many cases, but only those in which the enlargement was gross.

12 children had grossly enlarged or septic tonsils. Again, we have recorded only those evidently diseased, and have not included tonsils, very numerous, which might be described as " moderately enlarged." Knowing the difficulty experienced even by a competent throat surgeon in assessing the state of tonsils, there is no need to comment further on this. Two children had had their tonsils removed.

In 3 children there was otorrhœa at the time of examination, while in 10 one or both drums showed redness, and in 8 there were signs of old perforation or scarring.

8 children had skin sepsis, either impetigo or pustular lesions.

8 children had " running noses."

In 5 children there were stethoscopic signs of bronchitis.

One child had a loud systolic murmer over the præcordium, and in this child, as will be mentioned later, the X-ray silhouette of the heart was abnormal.

3 children had blepharitis or conjunctivitis.

1 child had phlyctenular conjunctivitis : this boy had a positive skin tuberculin reaction and radiological signs of pulmonary tuberculosis.

No other abnormalities were found.

Rickets.

In none of the 138 children was there radiological evidence of rickets, active or healed. This finding is in contrast with that of 5 cases of active rickets out of 103 children radiologically examined in the 1933 series of Dr. Spence. It must be stated, however, that since the conclusion of this investigation several cases of active rickets in " City " children of the same age group have come to our notice. These children were referred to hospital either from Child Welfare Clinics or from General Practitioners, and were, in the majority of cases, ill children ; as such they would not have come within the scope of our investigation. We feel justified in stating, therefore, that although rickets has not been eliminated from Newcastle upon Tyne, it is at least rare in apparently healthy children.

Other Deficiency Diseases.

We found no clinical evidence of any deficiency diseases in the 138 children.

Hæmoglobin.

In two cases this estimation was not made owing to refusal by the parent. In the remaining 136 the values were as follows :—

100% & over	99–95%	94–90%	89–85%	84–80%	79–75%	74–70%	69–65%	64%
3	7	15	26	30	30	17	7	1

It is difficult to decide on a hæmoglobin level below which a child should be considered anæmic. Dr. Spence regarded 75% as the lower limit of normal, and 65% as the level below which the child should be looked on as definitely anæmic. Comparing his figures with ours, and bearing in mind our previous remarks concerning apparatus and technique, we obtain the following table :—

	75% and over.	65–74%	Below 65%
1933 series.....	20%	57%	23%
1938–9 series.....	82%	17%	1%

The difference between the two series appears to us to be greater than could be accounted for merely by difference in technique, as the same type of hæmoglobinometer was used although by different observers, and we conclude that there is a greatly diminished incidence of anæmia in " City " children as compared with 1933.

Urine Examination.

Chemical examination revealed no abnormality, but in three cases leucocytes were seen microscopically in numbers we considered definitely in excess of normal, indicating three cases of possible unsuspected urinary infection.

Skin Tuberculin Reaction.

This reaction was performed on 134 children, four parents refusing consent. In 10 cases the reaction was positive, and in the remainder negative.

The findings in the positive reactors are shown in the following table :—

Case No.	Age.		Contact.	Evidence of Active or Healed Tuberculosis as shown by X-ray of Chest.
	yrs.	mths.		
17.	2	10	None known.	X-ray negative.
55.	4	0	None known.	X-ray shows thickened right interlobar septum.
68.	2	11	None known.	X-ray shows some extension of shadow from root into left upper lobe.
70.	4	7	Sister aged 10 years has had erythema nodosum and enlarged cervical glands. Has drunk unboiled milk.	History of erythema nodosum at 1 year, 7 months. X-ray negative.
71.	4	4	Mother had pleurisy 6 years ago.	X-ray negative.
82.	3	6	None known.	X-ray shows small right sided hilar flare.
96.	3	11	Father.	X-ray negative.
100.	3	6	Mother's brother died of pulmonary tuberculosis in 1932. Sister died of meningitis aged 14 years. Brother aged 10 years has positive skin reaction	X-ray shows right sided hilar flare. This child also had phlyctenular conjunctivitis.
111.	4	3	None known.	X-ray negative.
124.	4	2	None known.	X-ray negative.

It is worth noting that of the 10 positive reacters only 4 showed any radiological appearance which could possibly be interpreted as either active or healed tuberculosis. Of these only two (cases 82 and 100) could be considered active.

Radiographs of Carpal Centres.

In five cases the radiograph of the wrist was not satisfactory. In the remaining 133 we counted the number of carpal centres and compared this with the normal number as given by Francis (American Journal of Diseases of Childhood, 1939, lvii, 817, Francis. Carl C. "Factors Influencing the Appearance of Centres of Ossification during Early Childhood.") He gives the dates of appearance of the centres as follows :—

Hamate and capitate..at 2 months.
Triquetral .....at 10 months.
Lunate .....at 2 years.
Multangulum majus ..at 4 years 2 months.
Navicular.....at 4 years 4 months.
Multangulum minus ..at 4 years 8 months.

Judged by these normals, 90 children had fewer centres than normal, 29 had the normal number, and 14 had more than normal.

Chest Radiographs.

Satisfactory radiographs were obtained in 125 cases. In the lateral views little useful information was obtained. We attempted in the first place to take measurements giving width of mediastinum and size of heart in the antero-posterior films, but the futility of this procedure was soon demonstrated by one case in which the radiograph was repeated. The second film was taken evidently in a different phase of respiration, and gave measurements widely divergent from those in the first.

Of the 125 antero-posterior films we considered 104 to be within normal limits. One further case was normal with the exception of the presence of cervical ribs. In 8 cases there were shadows of doubtful pathological importance, alteration in rib contour and diaphragmatic outline. The abnormalities in the remaining 12 cases were as follows :—

1. Large or abnormal heart shadow in 5 cases. In one there was clinical evidence of congenital heart lesion.

2. Increase of lung markings at the right base in 2 cases. In one this was very gross, but a bronchography showed no evidence of bronchial dilatation. Both these children had suffered from measles, but of the 51 who gave such a history they alone showed any evidence of basal fibrosis or bronchietasis.

3. Thickening of the right interlobar septum in 2 cases. In one of these the skin tuberculin reaction was positive.

4. Small right sided hilar flare in two cases, and extension of root shadows into the left upper lobe in a third. These three cases all yielded positive tuberculin reactions.

Summary.

Using "Normals" as previously defined, we can summarise these findings briefly as follows :—

45% of the children had unemployed parents.

22% lived in houses with 2.5 persons per room or over.

73% belonged to families who spent below the minimum amount on food necessary to maintain good health.

50% had been breast fed for over 6 months.

75% had been vaccinated and 20% immunised against diphtheria.

51% had suffered from one or more of the infectious fevers.

37% from measles and 23% from whooping cough.

19% gave a history of respiratory infection.

9% gave a history of septic illnesses, abscesses, etc.

40% appeared unsatisfactory in general condition.

46% were below normal in weight, 37% in height, and 30% in both weight and height.

68% had fewer than normal carpal centres.

18% had a hæmoglobin value below 75% but only 1% below 65%.

There were no cases of clinical vitamin deficiency.

43% had gross dental caries.

30% had evidence of respiratory, skin or urinary sepsis.

7% had positive skin tuberculin reactions, while 2% showed evidence of active tuberculosis.

Taking into account only weight, height and hæmoglobin, 75 of the children (54%) were within or above normal limits. Of these, however, 16 children had evidence of illness, infected tonsils, marked cervical adenitis, urinary infection, respiratory infection, otorrhœa or active tuberculosis. This leaves 59 children (43%) who were healthy and of normal physical standards, and 57% below normal physically or unhealthy.

Interpretation and Conclusions.

We began this investigation with the object of comparing the health and development of Newcastle upon Tyne "City" children in 1938–39 with that of 1933, but a comparison is not easily made. In certain concrete figures it is possible. In both weight and height there is a slight improvement in 1938–39 as compared with 1933, but the difference is probably not of statistical significance. The hæmoglobin figures in our series are much higher than those in Dr. Spence's series; even allowing for difference of technique, we believe that there is a lower incidence of anæmia now as compared with 1933. The incidence of previous and present illness is very similar in the two series. There is a lower incidence of rickets in our series. With regard to the final figure of "unfit or unhealthy" children, Dr. Spence's figure of 36% can not justly be compared with ours of 57%, as his figure is based largely on a personal estimate of general condition, while ours is formulated purely on the concrete factors of weight, height and hæmoglobin, together with clinical or laboratory evidence of illness.

A fair conclusion is that there has been no significant change in the physical condition of "City" children in Newcastle upon Tyne since 1933, apart from a lessened incidence of anæmia and rickets.

We have attempted various correlations of physical condition, incidence of illness, dental caries, housing, money spent on food, and breast feeding, but in no case was any significant correlation obtained. In view of the small number of cases and the relatively large number of variables this was not unexpected.

Several facts, however, stand out; the poor physical condition of the "City" children of Newcastle upon Tyne, the high incidence among them of infective illness, the inadequate diet, and, yet perhaps surprisingly low incidence of anæmia and absence of rickets. Dr. Spence, in his enquiry, came to the following conclusion:—"The main factors which promote and perpetuate this physical damage are probably:—

(a) The housing conditions which permit mass infections of young children at susceptible ages.

(b) Improper and inadequate diet, which prevents satisfactory recovery from their illnesses."

Since Dr. Spence's inquiry there has been improvement in housing conditions. Whereas in his series out of 72 children investigated from the point of view of housing 13 belonged to families living 2.5 persons per room, and 31 to over 2.5 per room, in our whole series of 138 there were only 10 living 2.5 per room and 18 with over 2.5 per room. The fact that this improvement in housing has not led immediately to an improvement in health and physique must not be taken to invalidate Dr. Spence's first conclusion. It is only some time after the re-housing has been completed that an improvement in health can be expected. With regard to Dr. Spence's second conclusion, our inquiry brings ample evidence in its support; the inadequacy of the expenditure on food is so marked that poor physique and health would seem inevitable. In view of this poor diet, the low incidence of rickets and anæmia is rather surprising.

This inquiry was commenced in the hope of comparing the health and development of the "City" children of Newcastle upon Tyne in the winter 1938-1939 with that of 1933. No great change has been shown, but the findings in the main confirm those of Dr. Spence and give further support to his conclusions; viz., among the "City" children of Newcastle upon Tyne many are physically unfit or unhealthy, and an important causal factor is the inadequacy of their diet.

No. **SCHEDULE.**

NAME AND ADDRESS..... AGE.....

FAMILY HISTORY :—

Father..... Mother.....

Siblings..... Living..... Dead.....

Other Relatives.....

FAMILY CIRCUMSTANCES :—

Father :—Employed. Mother :—Employed.
Unemployed. Unemployed.

Income per week :— Wages..... Unemployment Benefit.....

Public Assistance.....Pension.....Health Insurance.....

Other Sources.....

Expenditure per week :—Rent..... Food..... Coal.....Lighting.....

Clothing..... Amusements..... Insurance.....Sundries.....

Clubs..... Travelling..... Tobacco..... Newspapers.....

Housing Conditions :—Number of rooms.....Occupants.....

General condition of house.....

PARENTAL CAPACITY :—

PERSONAL HISTORY.

Mother's health during pregnancy :—

Birth History :—Term.....Delivery..... Weight.....

Length.....

Development.	Height.	Weight.	Teeth.
1 month.....			
3 months			
6 months			
1 year			
2 years.....			
3 years.....			
4 years.....			
Present Age			

Diet during Infancy.....

Diet after 9 months.....

Nature and Severity of any Illness.....

Any Medical or Institutional Treatment.....

EXAMINATION.

GENERAL CONDITION :—

Activity ..... Stance .....
Subcutaneous Fat..... Colour .....
Muscle .....

PHYSICAL EXAMINATION :—

Heart..... Teeth and Gums.....
Lungs ..... Throat.....
Abdomen ..... Epiphyses.....
Eyes ..... Ribs.....
Ears ..... Other abnormalities.....
Cervical glands.....

URINE..... HÆMOGLOBIN..... TUBERCULIN TEST.....

X-RAY :—

Radial and Ulnar Epiphyses.....
Centres of Ossification.....
Chest .....

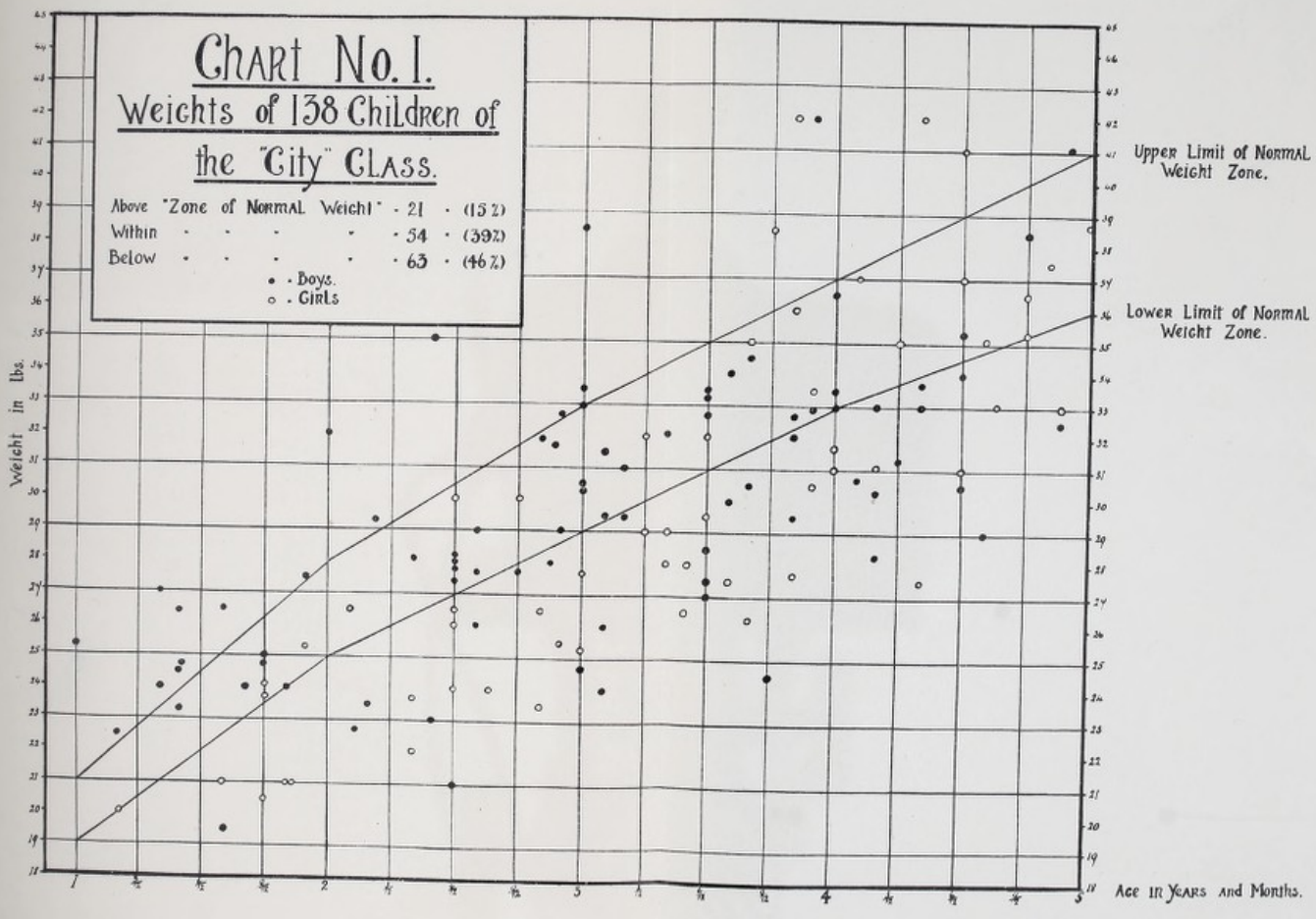
Chart No. I.
Weights of 138 Children of the "City" Class.
Above "Zone of Normal Weight" - 21 - (15%)
Within - - - - - 54 - (39%)
Below - - - - - 63 - (46%)
• - Boys.
○ - Girls
Upper Limit of Normal Weight Zone.
Lower Limit of Normal Weight Zone.
Weight in lbs.
Age in Years and Months.

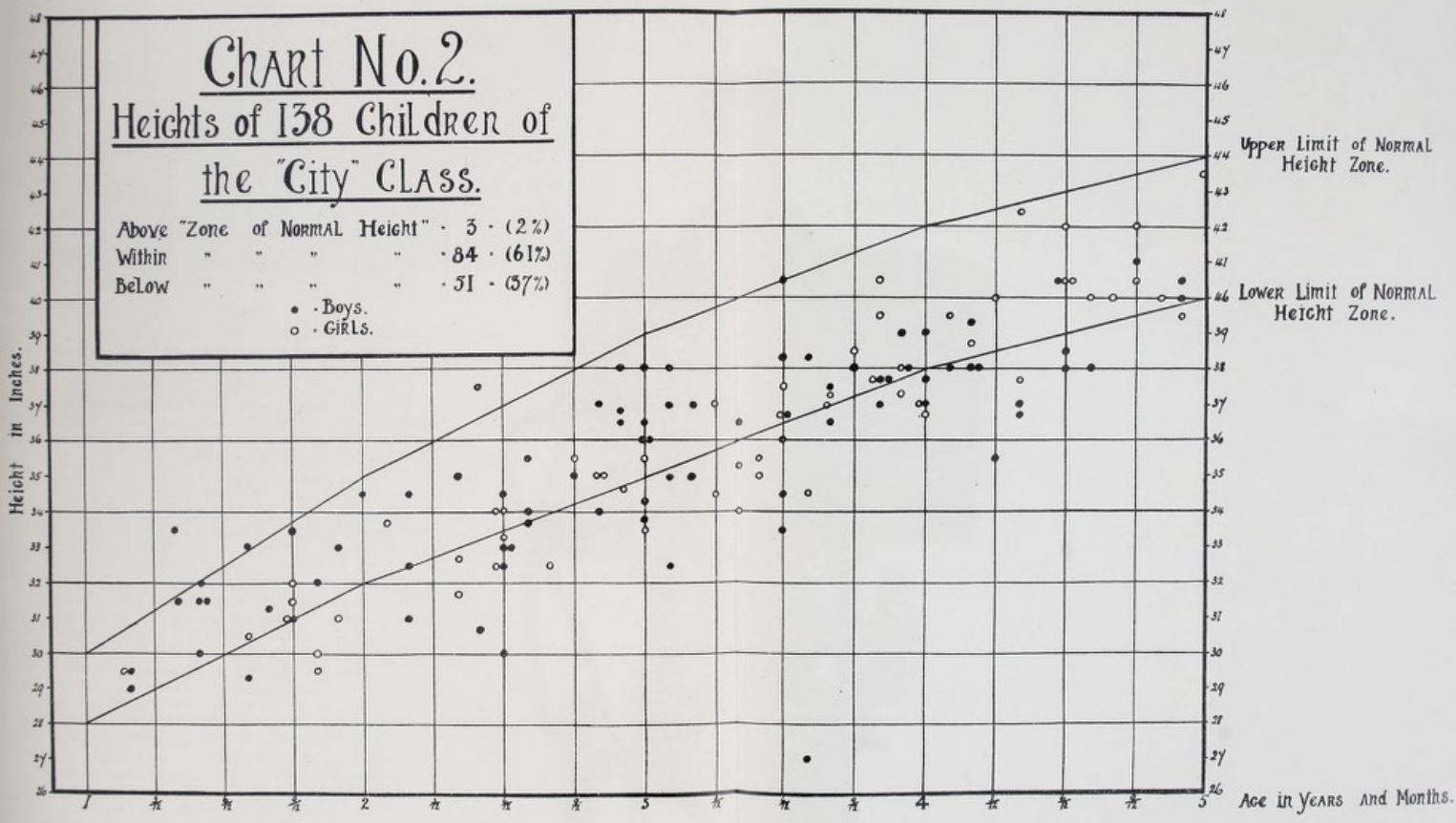
Chart No. 2.
Heights of 138 Children of the "City" Class.
Above "Zone of Normal Height" · 3 · (2%)
Within " " " " · 84 · (61%)
Below " " " " · 51 · (37%)
· Boys.
o · Girls.
Upper Limit of Normal Height Zone.
Lower Limit of Normal Height Zone.
Height in Inches.
Age in Years and Months.

Appendix B

ORGANISATION OF THE FIRST AID, AMBULANCE, and EMERGENCY HOSPITAL SERVICES.

Executive Officer for A.R.P. Services : DR. J. A. CHARLES, M.D., F.R.C.P.

1. The organisation of the First Aid, Hospital and Ambulance, Services, which has been called into being as a result of the national emergency is briefly as follows :—

(1) First Aid Parties.
(2) First Aid Posts.
(3) Ambulance Services.
(4) Emergency Hospitals—
  (*a*) Casualty Receiving Hospitals.
  (*b*) Base Hospitals.

The precise role which is being played by each of the above and their detailed organisation will be described in order in the subsequent paragraphs. A short account of the methods of communication and co-operation with and between the various units of the scheme and the other constituent elements of the A.R.P. organisation is included. A brief outline of the Emergency Mortuary arrangements is also appended.

2. FIRST AID PARTIES.

In theory the First Aid Parties should consist of 5, or at least 4 men, one of whom is also a driver, as the Parties are intended to be mobile. For this purpose each Party should be provided with a car.

At the outbreak of war the strength of the First Aid Party personnel was not more than 150 men, and it was necessary to undertake the most energetic recruitment in order to raise the numbers to the minimum required for the service to be operative at all.

As a result of these efforts the effective establishment is now—

Whole-time, men	386
Part-time, men	109

The establishment provides 2 reliefs for 97 First Aid Parties, each of 2 whole-time men, with a number of part-time volunteers in reserve for times of activity. The First Aid Party thus consists of 2 men, *i.e.*, the minimum necessary to carry a stretcher.

Considerable difficulty has been experienced in obtaining a suitable type of man for whole-time employment with First Aid Parties. A large number of volunteers have come forward, but after interview, medical examination, and preliminary training, only a proportion can be regarded as likely to make effective whole-time personnel.

With regard to part-time personnel, only a relatively limited number of men have volunteered and in view of the fact that there will always be an uncertainty with regard to the availability of part-time personnel it is proposed to regard the part-time establishment as a second line, rather than to depend upon its members for immediate service after an air raid.

It is thus necessary to have available a minimum number of whole-time personnel, and for this purpose a proposed establishment of 388 has been submitted to the Regional Commissioner.

With regard to the transport of the First Aid Parties, it was decided early after the outbreak of war that in order to obtain the maximum degree of efficiency from the small number of First Aid personnel available, the Parties should be linked as closely as possible with the ambulances by using the latter as their means of movement from place to place. (The cars allowed for the use of the First Aid Parties have not been employed in consequence of the introduction of this arrangement). Each First Aid Party—Ambulance

Unit consists of (*a*) the vehicle, (*b*) its driver, and (*c*) 2 trained First Aid men. The 97 First Aid Parties and the 97 ambulances associated with them constitute an integral part of the 75 Point Scheme, upon which the passive defence of the City is based. The 75 Point Scheme ensures that every part of the City is within very easy reach of a Depot or Sub-Depot at which are stationed representative sections of some or all of the services—First Aid, Ambulance, Auxiliary Fire Service, Rescue and Demolition, and Decontamination. The distribution of the First Aid Parties and their associated ambulances is set out below :—

2 cars and First Aid Parties at each of the 15 Key Depots	= 30 cars and 30 First Aid Parties.
1 car and 1 First Aid Party with each of the remaining 60 Sub-Depots	= 60 cars and 60 First Aid Parties.
7 cars with the Central Reserve of 7 First Aid Parties, stationed at the Central Control	= 7 cars and 7 First Aid Parties.
Total	= 97 cars and 97 First Aid Parties.

3. FIRST AID POSTS.

The appropriate number of First Aid Posts for a city with the population and area of Newcastle upon Tyne is 15. During the early months of 1938 an extended search for premises suitable to be used as First Aid Posts was made and over 150 buildings were inspected and measured. Only 9 were found which were able to provide the necessary requirements, and these buildings, after adaptation and protection, constitute the City's First Aid Posts. Owing to the relatively small number of Posts available, *i.e.*, 9 instead of 15, and the large size of the premises used, authority was given for correspondingly enlarged establishments of personnel. In addition sanction was obtained for the attachment of two medical practitioners to each Post instead of the usual establishment of one.

At the commencement of the war the selected buildings were not in a high state of readiness structurally, owing to the delays which had transpired in obtaining the approval of the Ministry of Health for the necessary adaptations. But the work of conversion was rapidly completed and the essential protective works were also carried out. Equipment had never been a difficulty, as the Health Committee had obtained large stocks during the 1938 Crisis, and these had subsequently been augmented by Government issues.

The location of the 9 Posts is as follows :—

No. of Post.	*Situation.*	*Telephone No.*
1.	Central School, Pendower	34732
2.	Elswick Hall, Elswick Park	34733
3.	Dame Allan's School, Bolbec Road	34162
4A.	Elementary School, Snow Street	35014
4B.	Newcastle Dispensary, 115 New Bridge Street	27946
5.	Royal Grammar School, Eskdale Terrace	Jes. 1639
6.	Public Baths, Chillingham Road	56316
7.	Elementary School, Raby Street	56326
8.	Public Baths, Wharrier Street	63394

The staff allotted to each Post is as follows :—

(*a*) Medical Officer .... 2 (Part-time).

(*b*) Whole-time Nursing and First Aid Personnel :—

(i) Trained Nurse 1
(ii) Male First Aid Personnel 4
(iii) Female First Aid Personnel and Nursing Auxiliaries 21

Total whole-time personnel .... = 26 (4 male, 22 Female)

(*c*) Part-time First Aid Personnel :—

(i) Male First Aid Personnel 4
(ii) Female First Aid Personnel 30

Hours of Duty.

(*a*) The posts are open continuously day and night.
(*b*) Whole-time personnel work 8-hour shifts and have one completely free day in seven.
(*c*) Part-time personnel attend as and when it may be convenient for them to do so.

Functions.

The main functions of a First Aid Post is to admit minor casualties and to give to the individuals concerned such treatment as may be necessary. After they have received attention, such cases are sent home, with instructions to return to the Post for further treatment, or to attend their family practitioner. They may also be despatched to hospital for x-ray examination, special treatment, etc.

Serious casualties occurring in the vicinity of a First Aid Post are admitted to the Post, and subsequently transferred to the Casualty Receiving Hospitals. Other serious casualties are collected by the First Aid Party and Ambulance System, and brought to the Post (but not admitted) so that the Medical Officer in charge of the Post can confirm the diagnosis and give any immediately essential treatment or advice as to the care of the patients undergoing transportation. The patients are then despatched to the Casualty Receiving Hospitals.

4. AMBULANCE SERVICES.

The approved establishment of ambulances and cars for sitting cases allowed for this City is at present 145 ambulances and 97 cars. Prior to September, 1939, the Ambulance Officer had arranged for the earmarking of a considerable proportion of the vehicles required to function as ambulances and the smaller cars required for sitting casualties. Five motor engineering firms had placed their premises at the disposal of the City for use as Maintenance Depots. The stretcher-carrying fitments and other equipment for the ambulances were stored at these depots and were issued to the vehicles on mobilisation. The largest number of vehicles mobilised at any one time was 121 ambulances and 55 sitting cars, and these numbers have been reduced by the release of certain vehicles until the actual strength now is 118 ambulances and 48 sitting cars. Very shortly after mobilisation it became evident that the hire and maintenance of these vehicles, many of which were in a decrepit condition, was likely to involve an exceedingly large expenditure. The details in respect of the ambulances mobilised during the month of September were as follows :—

Hire	£1,905
Repairs and Maintenance	£484
Petrol and Oil	£260
Total —	£2,649

In view of these facts representations were made to the Ministry of Health on the 21st September suggesting that the vehicles requisitioned for ambulance duties should be replaced by large private motor cars which could be purchased and converted into light ambulances at a relatively low cost. This recommendation was agreed to by Ministry of Health Circular 1893 issued on the 20th October. As soon as the requisite authority had been obtained steps were taken to acquire, either by gift or by purchase, a sufficiency of ambulances to replace the majority of the old van type of ambulance. So far, 35 light ambulances have been obtained by the methods indicated, and an equivalent number of requisitioned vehicles released.

The Home Office and the Ministry of Health have recently suggested that the number of ambulances constantly on duty should be reduced to one-third of the total establishment, and that the balance of the original establishment might be obtained from the auxiliary establishment consisting of vans in ordinary employment which would report at Ambulance Stations as and when required. Representations have been made to the effect that these suggestions are impracticable in so far as this City is concerned. It is agreed, however, that some reduction can be effected in the authorised establishment of ambulances and cars for sitting cases, and the following establishment has been put forward :—

Ambulances	96
Cars for sitting cases	56

5. EMERGENCY HOSPITALS.

In order to provide adequate arrangements for the treatment of casualties, emergency hospitals are provided both within and outside the areas they are intended to serve. Those located in the area constitute Casualty Receiving Hospitals, those outside are regarded as the Base Hospitals. Usually the number of beds in Base Hospitals far exceeds the number in the institutions reserved for the reception of casualties.

In the Newcastle area, however, owing to the fact that the bulk of the hospital accommodation for Northumberland and Tyneside is concentrated in the City, and the consequent absence of suitable hospitals in the adjacent areas, it was found necessary, temporarily at any rate, to reverse the normal arrangement. At the present time the majority of the emergency hospital beds are situated within the City, and in fact the normal establishment of beds has been considerably augmented by the erection of additional beds both in existing wards and in other accommodation within the hospitals. The Base Hospitals outside, although each possessing a nucleus of bed accommodation, are still in progress of development and construction.

The policy of the Ministry of Health, in so far as Base Hospitals are concerned, has been to take an existing institution and build in association with it large hutments, comprising hospital wards, kitchens, operating theatres, etc. Such hutted hospitals are at present in course of erection at Shotley Bridge, Stannington and Hexham. When these Base Hospitals are complete, their total complement of beds will exceed the accommodation in the casualty receiving institutions in Newcastle.

The emergency hospitals for the City have been organised in two groups—municipal and voluntary respectively. The constitution of these groups and the beds which will be ultimately available at the individual hospitals are set out in the following tables. (It should be understood that in addition to the hospitals included in the latter, there are a number of other institutions, *e.g.*, the City Mental Hospital, Gosforth, at which beds have also been provided.)

It will be noted that at the institutions owned by the City Council, *e.g.*, Newcastle General Hospital, Elswick Grange, and Shotley Bridge Colony, no fewer than 2,000 casualty beds will be available.

Despite the fact that large numbers of beds are reserved specifically for the reception of casualties, the hospitals in Newcastle are still able to treat every patient who requires their services. The work of augmenting the accommodation in the hospitals has entailed the provision of large stocks of beds, blankets, drugs, dressings, surgical instruments and x-ray apparatus. In the main this has been done by the Ministry of Health, though in certain cases valuable apparatus owned by the hospitals in the City has been transferred on loan to the Base Hospitals outside.

Medical Staff.

All medical staffs of the hospitals in the municipal group are based on the consulting staff of the Newcastle General Hospital. Similarly, the Royal Victoria Infirmary provides the medical staffs for the hospitals in the voluntary group.

MUNICIPAL GROUP.

HOSPITAL OR INSTITUTION.	FUNCTION OF HOSPITAL IN TIME OF WAR.	BEDS AVAILABLE FOR CASUALTY PURPOSES.	BEDS AVAILABLE FOR CIVILIAN SICK AND OTHER PURPOSES.
Newcastle General Hospital	Civilian Sick Casualty Reception	512	502
Elswick Grange	Civilian Sick Casualty Reception	621	415 (*a*)
Shotley Bridge M.D. Colony	Base Hospital	884	250 (*b*)
Hexham P.A. Institution	Base Hospital	500	87 (*a*)

VOLUNTARY HOSPITALS.

HOSPITAL OR INSTITUTION.	FUNCTION OF HOSPITAL IN TIME OF WAR.	BEDS AVAILABLE FOR CASUALTY PURPOSES.	BEDS AVAILABLE FOR CIVILIAN SICK AND OTHER PURPOSES.
Royal Victoria Infirmary	Civilian Sick Casualty Reception	662	438
Fleming Memorial Hospital	Civilian Sick Casualty Reception	92	30
Sanderson Hospital School	Casualty Reception	195	—
Stannington Sanatorium	Base Hospital	578	310 (*c*)
Stannington Mental Hospital	Base Hospital	500	700 (*d*)

Note—(*a*) = aged and infirm ; (*b*) = mental defectives ; (*c*) = tuberculosis ; (*d*) = mental cases.

Nursing Staff.

The greatly increased accommodation in the hospitals has necessitated considerable additions to the nursing personnel. These have been provided through the channel of the Local Emergency Committee for the Nursing Profession, which has been able to utilise the resources of the St. John Ambulance Brigade and the British Red Cross Society. It has also undertaken the organisation of a large number of volunteers who have elected to be trained under municipal auspices. This nursing personnel constitutes the local section of the Civil Nursing Reserve. At the present moment 232 of them are employed at the various hospitals in the two groups on a whole-time basis, while 330 others give part-time service or are standing by ready to serve when required. In addition, 700 are in course of training, and will be available for hospital duty in the immediate future.

6. COMMUNICATIONS, PROCEDURE FOR DISPOSAL OF CASUALTIES, LINES OF EVACUATION, ETC.

Communications.

The First Aid Parties and Ambulance Services are intimately linked with the 75 Points Scheme. Under this scheme a certain degree of autonomous action is permitted to the Directors or Sub-Directors of the Depots or Sub-Depots. Every Depot or Sub-Depot is in communication with the Sub-Control Centres and Central Control by means of direct telephone lines. First Aid Posts and hospitals, though not in direct line telephonic communication with the A.R.P. system, can be reached through the ordinary telephone service or by runner.

Disposal of Casualties.

The procedure laid down for the collection and disposal of casualties is briefly as follows :—

On the occurrence of any incident requiring First Aid services, a motor ambulance, carrying a First Aid Party in addition to its driver, proceeds from the Depot or Sub-Depot, picks up the casualty and transports it to the nearest First Aid Post. The casualty is not necessarily admitted to the First Aid Post, but is seen by the Medical Officer of the Post, who determines whether the wound or injury is so severe as to necessitate immediate transportation to hospital, or alternatively is of a less degree of severity which would allow of its treatment at the First Aid Post. After transferring the patient to hospital or leaving him at the First Aid Post the ambulance returns to its Depot or Sub-Depot.

Lines of Evacuation.

From all points within the area of B Division Sub-Control Centre (which is the same as " B " Police Division), and from the First Aid Posts Nos. 1, 2, 3 and 4A, casualties are referred in the first instance to the Newcastle General Hospital. From the remainder of the City, *i.e.*, from the areas of A and C Division Sub-Control Centres, and from First Aid Posts Nos. 4B, 5, 6, 7 and 8 they are sent to the Royal Victoria Infirmary. These arrangements would obviously be modified if and when one or other of the hospitals is filled to capacity.

7. CIVILIAN DEATHS DUE TO WAR OPERATIONS.

The responsibilities placed upon Local Authorities in respect of Civilian Deaths due to war operations comprise :—

(*a*) The collection of bodies from streets and buildings ;
(*b*) The conveyance of bodies to mortuaries ;
(*c*) The provision and equipment of mortuary accommodation ;
(*d*) Identification, records and registration in respect of bodies disposed of;
(*e*) The interment of bodies ;
(*f*) Staffing and organisation ;
(*g*) Training of personnel.

The removal of bodies from streets and buildings will be carried out by First Aid and Rescue Parties ; the interment of bodies will be arranged by relatives, or in their absence by the Cemeteries Sub-Committee ; the remainder of the duties enumerated above have been delegated by the City Council to the Health Committee, which has taken the following action in respect thereof.

Conveyance of bodies to Mortuaries.

18 vehicles have been requisitioned under the Civil Defence Act, 1939, for this purpose. Vehicles will not be stationed permanently at the mortuaries but will only report for duty after an air-raid, if the City has been bombed. The owners of the vehicles have agreed to provide drivers.

Provision and equipment of Mortuary accommodation.

The existing mortuary accommodation in the City is insufficient for war requirements, and it has been found necessary to provide temporary mortuaries, with accommodation for 1,200 bodies. These are located in 9 different buildings, situated in various parts of the City. The requisite structural alterations have been carried out, and the appropriate equipment and stores collected.

Staffing.

The following staff has been appointed to carry out the various duties, which include the identification and preparation of bodies, and the registration of details in respect of bodies disposed of :—

Part-time.

Co-ordinating Officer in general charge of the organisation	1
Mortuary Superintendent—for clerical, registration and supervisory duties	9
Mortuary Attendants	27
Vehicle Drivers—accompanying requisitioned vehicles	18

Whole-time.

Supervisors—for general supervision of a group of 3 mortuaries	3
Vehicle Attendants—to accompany vehicles and assist Mortuary Attendants	36

8. TRAINING.

In order to fit the many hundreds of volunteers for their various branches of service, it has been necessary for the Health Department to organise courses of instruction. These courses of instruction relating to anti-gas measures, first aid and home nursing, amongst other subjects, have been given constantly during the past two years, though in increasing measure during the past six months.

One of the most interesting of the activities undertaken has been the establishment of a First Aid School at Elswick Hall First Aid Post, where instruction in elementary first aid, and advanced first aid, has been given to all members of the First Aid Parties. It has been realised that the First Aid man's knowledge of First Aid work must be constantly refreshed in order to maintain him in the proper state of efficiency.

Apart from instruction, collective training has taken place in all the First Aid Posts, and in the wards of the Emergency Hospitals large numbers of Auxiliary Nurses have been given an opportunity to acquire the necessary practical knowledge of sick nursing. The requests of the general public for instruction in Anti-gas Measures and First Aid have been met as far as possible.

At the present time 24 classes in First Aid, Home Nursing, and Anti-gas Measures are being given each week to the various classes of volunteer and to the general public.

The education of the volunteer has not been limited to First Aid and Hospital Personnel. The Ambulance Officer, for example, has organised classes in simple running repairs and in car maintenance for the members of his organisation.

9. ADMINISTRATION.

The general administrative control of all the Municipal First Aid Services is vested in the A.R.P. Controller (F. J. Crawley, Esq.).

The detailed administration of the same services and the general supervision of the Municipal Emergency Hospitals in the City and at Shotley Bridge are carried out by the Medical Officer of Health (Dr. J. A. Charles) from the Health Department, Town Hall, Newcastle upon Tyne.

The co-ordination of all Emergency Hospitals in the counties of Northumberland and Durham and the North Riding of Yorkshire, is the duty of the Ministry of Health Hospital Officer (Colonel H. T. Bates, O.B.E., B.A., M.B., Ch.B.), Clarendon House, Clayton Street West, Newcastle upon Tyne.

The co-ordination of the Voluntary Hospitals in and around Newcastle is carried out by the Group Officer (Mr. F. C. Pybus, F.R.C.S.), the Royal Victoria Infirmary, Newcastle upon Tyne.

The provision of nursing personnel for the Municipal and Voluntary Groups of Hospitals is the work of the Local Emergency Committee for the Nursing Profession, in association with the St. John Ambulance Brigade and the British Red Cross Society. The office of the Committee is situated in the Health Department, Town Hall, Newcastle upon Tyne.

The following is a detailed list of the Administrative and Executive personnel :—

Local.

Executive Officer for Medical A.R.P. Services
DR. J. A. CHARLES, Health Department, Town Hall.

Deputy Executive Officer for Medical A.R.P. Services
DR. E. F. DAWSON-WALKER, City Hospital, Walker Gate.

Assistant Executive Officer for Medical A.R.P. Services
DR. F. J. W. MILLER, Health Department, Town Hall.

First Aid Commandant
DR. GAVIN MUIR, 46 Cloth Market.

Ambulance Officer
MR. T. BROOKE DAVISON, 46 Cloth Market.

Staff Officer for A.R.P. Medical Services
MR. F. MILTON, 46 Cloth Market.

Group Officer for Voluntary Hospitals
MR. F. C. PYBUS, F.R.C.S., Royal Victoria Infirmary.

Regional.

Hospital Officer, Ministry of Health
COLONEL H. T. BATES, O.B.E., B.A., M.B., Ch.B.,
Clarendon House, Clayton Street West, Newcastle upon Tyne.

January, 1940.