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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

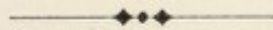
DURING THE YEAR

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**To Alderman WALTER THOMPSON, J.P., Chairman
of the Health Committee of the Corporation.**

Sir,

I have the honour to submit this, the sixty-ninth annual report of the Medical Officer of Health on the Sanitary condition of the City.

It is a curtailed document, which seeks to elucidate some of the statistical data for the year 1941, and selects and summarises for rapid consideration the more important sections of the reports relating to the constituent portions of the Health Committee's organization. These basic reports, all containing information of interest and importance, have been prepared by the officers responsible in accordance with the normal procedure, but for reasons of economy in paper and labour, they have been reserved for publication until after the war.

The year 1941 was the second full year of the second world war. Its records prompt comparisons with 1916, the second year of the Great War, and such comparisons evoke memories, indicate parallels, stimulate conjectures and prohibit prophecy.

The population of the City on June 30th, 1941, is estimated by the Registrar General to have been 254,960. This total is to be compared with the figure of 293,400 which represents the estimate for 1939. The difference between this total and the pre-war figure is explained by recruitment of both males and females to the Forces of the Crown, by evacuation of children, expectant mothers and cripples, and to a small but increasing extent, by the diversion of labour to other parts of the country. The actual reduction of the population is of no particular importance. It could be argued that the previously overcrowded condition of many of our houses might thereby have been alleviated, though the factual premises for the speculation are but scanty.

It is important, however, that the grouping of our population has changed to the detriment of those statistical indices of our health and biological welfare—the birth and death rates for the City.

The movements of population already specified have had these direct and indirect results :—

- (a) There is an actual reduction of the population between the ages of 5 and 16 years, as a consequence of the evacuation of approximately 8,000 school children.
- (b) Males at arm-bearing ages are serving with the Forces of the Crown. To a certain limited extent during 1941 the same could be said of young women.

- (c) Relative to the remainder of the population there is an increase in the proportion of women of child-bearing age.
- (d) The increasing longevity of the average man and women has caused an actual increase in the number of persons above the age of 50. Greater weight statistically has been given to the actual increase in these age groups by virtue of the fact that owing to the transference elsewhere of children and young adults, there is also a relative preponderance of the middle aged and elderly who remain.

Of these four influential factors, the first and second together are largely responsible for the fall in our total population. In association with the third they explain our comparatively high birth rate even when the number of births is diminishing.

To the fourth factor is directly attributable, at any rate in part, the rise in the total mortality. (The remainder of the increase is due to air-raid casualties). The effect of that increased mortality, as shown in the mounting death rate, is also enhanced by the operation of the first two factors referred to. In a word, the pattern of our population—its distribution amongst the various age and sex groups—is the paramount influence in determining whether our common indicators of fertility and mortality—of new life and of death—are low or high.

Amongst this population of 254,960 civilians, there were in 1941 2,817 marriages, 4,176 births and 3,963 deaths.

Marriages and the Marriage Rate.

The number of marriages contracted in 1940—namely, 3,361—was a record for the City. It would have been too much to expect 1941 to reach or to overtop this total and, in fact, it fell short of it by 544 marriages.

Nevertheless, the number of marriages entered into, 2,817 in all, is greater by 15% than the average of the five years immediately preceding the war. Calculated in the usual fashion, the Marriage Rate of Newcastle for 1941 was 22.0 per 1,000 of the population. Consideration of Table III will show that the impetus towards matrimony which was likewise a feature of the Great War of 1914-18 had been slowed down in some degree by the end of the second full year of the war. This effect was also noticeable in 1941, but it should be remarked that the marriages of 1941 were nearly 200 in excess of those recorded in the comparable year of 1916.

There is no better evidence of the confidence which the country holds in its future than those faithful enterprises undertaken when optimism was indeed an intuitive virtue.

Birth and the Birth Rate.

Reasons have already been put forward to explain the comparatively high birth rate of 16.4 per 1,000—a rate which slightly surpasses the average rate for 1934-1938, namely, 16.1 per 1,000.

We see this matter in its true perspective when we contrast, not birth rates, but the total of registered births. During the five years preceding the war, an average of 4,674 births were recorded annually. The tally for 1941 was 4,176 or approximately 90% of that average.

It is in fact the smallest total of births ever achieved in the City during the sixty-nine years of which we have some special knowledge in the form of the Annual Report of the Medical Officer of Health. In 1873 when Dr. Henry Armstrong became the first Medical Officer of Health of a Newcastle which was inhabited by no more than 133,000 souls, the births (as registered) numbered 5,652, and the birth rate exceeded 42 per 1,000 of the population per annum.

The reduction of the natality of the City during 1941 was not merely a local phenomenon. The Registrar General records that for England and Wales as a whole, the total number of births was the smallest recorded since the introduction of compulsory birth registration in 1874, with the single exception of the year 1933. The National birth rate, however, reached the unprecedentedly low level of 14.2 per 1,000 of the population.

The peace years of 1920 and 1921 were marked by a flood of fertility which produced 957,782 births in the former and 848,814 births in the latter year. Thereafter the return diminished until in 1933 only 580,413 were registered—a number inadequate to replace each child bearing mother in this generation by a successor in the next.

Almost certainly the experiences of 1920 and 1921 will be repeated when "Peace brings the Eagles home" and the treasury of new life will be refilled for a time. But it is abundantly clear that if we are to resist the tendency of the falling birth rate and would avoid the various resultants—economic, social and biological—of its continuance, then some form of State encouragement of the family will be an inescapable necessity in the post-war era.

The General Mortality.

In 1941 the number of deaths recorded—namely, 3,951—showed an advance upon the total of the previous year when 3,733 were

registered. Part of this excess is due to the increase in air raid casualties which during the two years were 115 and 9 respectively. There remains, therefore, an increase of 112 deaths due presumably to natural causes.

1941 was the third consecutive year in which the annual tide of mortality slowly advanced from 3,621 in 1938 to 3,836 (without air raid casualties) in 1941; a percentage increase of 5.6. In similar fashion, the death rate has continued to rise—from 12.4 per 1,000 in 1938 to 15.0 (without air raid casualties) in 1941. This proportionate increase is much greater, being of the order of 21%.

Death rates, however, are misleading signposts to local mortality at the present time. The death returns and the totals computed from them provide more reliable guidance. On the basis of the death rates alone, one might reasonably conclude that the health of the inhabitants of this City had suffered serious deterioration since 1938. The returns of deaths indicate that though the total mortality is, broadly speaking, larger year by year, it is due in great part to the increasing agefulness of the population. (As a matter of interest it should be known that in 1941 49% of all deaths took place after the age of 65, whereas in 1931 and 1921 the comparable percentages were 37% and 26% respectively).

The vagaries of an oddly constituted population which disturb our local death rates are smoothed out in the national returns. The age and sex distribution of the national population in 1941, though differing from the pre-war model, by reason of the transfer of combatants and others, was not so seriously altered as to affect the annual death rates materially. Many of the soldiers, airmen and factory workers who had left Newcastle were still within the confines of England & Wales—still members of the national population. In that population there were fewer deaths in 1941 than in 1940, and that difference still continues when air raid casualties are subtracted from the two totals. Adjusted by the deduction of air raid casualties, the death rate in England & Wales during 1941 was 11.7 per 1,000 which is very little higher than the rate of 11.5 which prevailed in the two countries in 1939.

It can be said with confidence and finality that the war-time crude death rates so far do not suggest any noteworthy retrogression in the standard of the national health. It is only by a careful analysis of the trend of certain of the individual causes of death, and by a consideration of the changing incidence of some forms of sickness that we can visualise the "little cloud no larger than a man's hand".

Mortality from Certain Special Causes.

The customary review of the individual causes of death requires some introductory remarks.

The year 1940 marks a turning point in the modern vital statistics of England & Wales. Owing to changes in the method of sorting and assigning priority to the causes of death as described on the death certificate by the medical practitioner, it is no longer easy to compare the mortality rates for individual diseases as calculated in 1939 and earlier, with the rates for diseases of the same name in 1940 and subsequent years. A death recorded as due to "Bronchitis and Myocardial Degeneration" would, in 1939, have been assigned to the category of heart deaths; in 1941 "Bronchitis" would be given the preference and the death would be included in the respiratory group.

The fifth revision of the International list of the Causes of Death also came into use on January 1st, 1940. Though the effect of this in the issue has been to place the certification of mortality on a more scientific basis, it is another explanation of our inability—except at cost of time and labour—to give those illustrative comparisons of the present with the past, which are of more than merely historical interest. The passage of time, however, will enable us to collect the data upon which these comparative studies of local and national death rates can be based with a reasonable expectation of accuracy.

Table I, which covers two years of the new statistical era, and one of the old, demonstrates the order of priority of the sovereign causes of death. Despite the effect of the alternative factors but recently described (which can be readily seen in the table) there is no change in the relative positions of the five chief causes of mortality.

The cardio-vascular diseases are still paramount and their pre-eminence is not likely to be assailed.

For the fourth year in succession, Cancer has accounted for an increasing proportion of the total mortality; has registered a larger score of deaths, and maintained its place as second in the order of precedence. There is no reason to believe that war-time conditions are acting restrictively on the treatment of cancer, or that the disease is finding new fields for affliction. The increasing age of the population is a sufficient explanation.

As is well known the Cancer Act of 1939 has been on the statute book for over two years, but local authorities have been released from the obligation to operate it at present. Nevertheless; even

TABLE I.

SHEWING THE RELATIVE POSITIONS OF THE FIVE CHIEF CAUSES OF DEATH IN
NEWCASTLE DURING THE YEARS 1939, 1940 AND 1941.

	1939.	No.	Percentage of Total Mortality.	1940.	No.	Percentage of Total Mortality.	1941.	No.	Percentage of Total Mortality.
1.	Diseases of the Cardio-vascular System	1,278	34.9	Diseases of the Cardio-vascular System	859	22.9	Diseases of the Cardio-vascular System	778	19.6
2.	Cancer.....	457	12.5	Cancer.....	474	12.6	Cancer.....	510	12.9
3.	Diseases of the Nervous System	289	7.9	Diseases of the Nervous System	420	11.2	Diseases of the Nervous System	496	12.5
4.	Bronchitis and Pneumonia	275	7.5	Bronchitis and Pneumonia	364	9.7	Bronchitis and Pneumonia	481	12.1
5.	Tuberculosis of the Respiratory System	232	6.3	Tuberculosis of the Respiratory System	251	6.7	Tuberculosis of the Respiratory System	249	6.3

with diminishing resources, both clinical and administrative, it would appear advisable that the hospitals and local authorities concerned should take steps to organise their forces, so that they may be brought into the fight at the earliest practicable opportunity.

Of the next two rankers in the list, the diseases of the Nervous System and Bronchitis and Pneumonia, little can be said until the statistical position is more stable, and valid comparisons can be instituted and carried from one year to another. It will suffice for the present to record the increased incidence of these conditions, and to draw attention to their enlarged share in the composite death roll.

Finally, we come to Pulmonary Tuberculosis and find that, like the group of Cardio-Vascular diseases, it has a reduction in mortality to its credit, and not an increase. The reduction is admittedly small, and is offset by a slight advance in the number of deaths attributed to the non-respiratory form of the disease—and in particular, to Tuberculosis of the Central Nervous System. The comparable figures for 1940 and 1941 were 51 and 56 for all forms of non-pulmonary tuberculosis, and 20 and 31 for the very fatal infection of the meninges.

There is thus no glimmer of reason for complacency, and any tendency in that direction, which the indeterminate nature of the statistical tale might encourage, should be subdued at once when we remember the natural history of tuberculosis in the human species. Apart from a few relatively rare acute manifestations, tuberculosis is a chronic disease. The causal factors which operate in a community either singly or in association, to bring about the increased tuberculous infection and re-infection—the presence of sputum positive sufferers, domestic overcrowding, deficient ventilation, insufficient hospital accommodation, malnutrition, the stress of overwork—are not reflected, or only exceptionally so, in any immediate outburst of deaths. Instead, clinical cases of the disease are found more commonly over a period of time, and the live records of the Tuberculosis Dispensary bear witness to the rising incidence. The importance of tuberculosis as an infectious disease will be discussed in a later section of this report.

It is of course common knowledge and experience that death does not occur with the same frequency throughout the various stages of life, and that individual diseases are more prone to find their victims in certain age groups. Table II has been compiled with a view to elucidating these points in greater detail.

TABLE II.
DEATHS FROM CERTAIN DISEASES IN AGE GROUPS 1941.

DISEASE.	0-5		5-15		15-25		25-45		45-65		Over 65	
	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%
Diphtheria	19	100	7	36.8	1	5.3	1	5.3	.....	.....	.....	.....
Measles	6	100	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Whooping Cough	29	100	1	3.4	.....	.....	.....	.....	.....	.....	.....	.....
Cerebro-Spinal Meningitis	15	100	2	13.3	4	26.7	2	13.3	.....	.....	.....	.....
Influenza	38	100	1	2.6	1	2.6	2	5.3	13	34.2	16	42.1
Pulmonary Tuberculosis	249	100	2	0.8	59	23.7	97	39.0	71	28.5	15	6.0
Non-pulmonary Tuberculosis	56	100	6	10.7	20	35.7	11	19.6	.....	.....	1	1.8
Cancer	510	100	3	0.6	1	0.2	46	9.0	210	41.2	249	48.8
Diabetes	23	100	.....	.....	3	13.1	1	4.3	7	30.4	12	52.2
Heart Disease	778	100	3	0.4	8	1.0	39	5.0	243	31.2	485	62.4
Bronchitis	273	100	21	7.7	2	0.7	9	3.3	75	27.5	166	60.8
Primary Pneumonia	39	100	4	10.25	3	7.7	4	10.25	14	35.9	14	35.9
Syphilis	27	100	.....	.....	.....	.....	1	3.7	17	63.0	9	33.3
Nephritis	129	100	1	0.8	3	2.3	18	14.0	43	33.3	64	49.6
Road Accidents	47	100	8	17.0	7	15.0	9	19.1	9	19.1	12	25.5
Air Raids	115	100	11	9.6	18	15.6	34	29.6	30	26.1	14	12.2
Deaths from all causes	3,951	100	65	1.6	163	4.1	397	10.1	1,084	27.4	1,824	46.2

Maternal Mortality.

So far as Maternal Mortality is concerned, 1941 almost succeeded in maintaining the unprecedented record of 1940, when eleven maternal deaths were registered and the local mortality rate was less than the national one. In 1941, twelve maternal deaths were reported, and in consequence of the smaller total of births, the rate rose from 2.37 per 1,000 live and still births to 2.82. At this level it was higher than the national rate of 2.23, but in one respect it improves upon that rate, for not a single case of fatal puerperal infection occurred amongst Newcastle mothers during the year. Complementary to this finding is the fact—not altogether so comforting—that our incidence of maternal deaths due to non-infective causes is greater than the national experience. If we compare the non-infective maternal death rates for Newcastle and England and Wales we find them to be as follows :—

	Newcastle	England & Wales
1937	3.21	2.19
1938	2.27	2.11
1939	3.32	2.08
1940	1.94	1.92
1941	2.82	1.75

With the virtual subjugation of puerperal sepsis as a cause of death, we have reached a further stage in the liberation of child-bearing from preventable mortality. That deliverance has been due in great part, though not exclusively, to the development of new therapeutic drugs. The remainder of the task will not be so easy, if in fact it can ever be accomplished.

A rough classification of the twelve puerperal maternal deaths occurring amongst Newcastle mothers, fits them into three groups. Two were entirely unavoidable; three fell into the category of possible, though doubtful, preventability; seven should not have died. The precise nature of the factors which contributed to or caused the fatal issue were determined as far as possible. In some cases an error of omission or commission could be attributed to the patient; in others, to the medical practitioner; in others again nothing was overlooked or neglected, and simple mischance was the only determinant. Patiently we must strive for higher standards of maternal care, before, during and after the confinement, for improved treatment of obstetrical emergencies, for the elimination of avoidable errors, and for the better education in these matters of patient, midwife and doctor alike.

Infantile Mortality.

At first sight the record of 1941 as regards Infantile Mortality is disappointing, for the rate advanced from 64 in 1940 to 76 in the year under review. It seemed as if at one stroke much of the progress of the previous three years had been wiped away, and that we were returning to the dreary figures of the early and middle years of the decade, when rates in the 80's and 90's were the rule and not the exception.

Between the red letter year of 1939 (when the Infantile Mortality rate in Newcastle reached its lowest recorded level of 62 per 1,000 births) and 1941, there would appear to have been a definite retrogression equivalent to 14 deaths per 1,000, or an increase in the rate of some 23%. But if we take into account those other fatalities of conception, the still births, we find that whereas the still birth rate per 1,000 live and still births was 38 in 1939, it was 32 in 1941. And if we carry the process of analysis still further, and state a combined rate for still births and for deaths in the first year of life, per 1,000 live and still births, the comparable figures for 1939 and 1941 are 97 and 105 respectively. In other words the measure of retrogression in our endeavours to save young life is 9% rather than 23%.

Let us look facts in the face, and try and determine the salient causes of infantile death operating in 1941. Compared with the two preceding years the following causes were absolutely or relatively in excess :—

1. The causes of neo-natal death in general, and prematurity in particular.
2. Whooping Cough.
3. Diseases of the Respiratory System.
4. Accidental Mechanical Suffocation.

Here again, some comment on the individual groups may be helpful. The increase in the Neo-natal Death Rate is undoubtedly associated with, and complementary to, the decline in the still-birth rate. The infants which have survived the trial of birth have presumably included some which in previous years would have failed to achieve a separate existence. Certain of these survivors have been unable, through one cause or another, to continue their voyage in time, and as neo-natal victims, have helped to swell the group of deaths attributed to "prematurity".

Whooping cough killed 13 infants under 12 months, a total larger than in any year since 1937. There is no need to emphasise the importance of whooping cough as a factor in child mortality.

It ranks before diphtheria and yields place only to measles amongst the infectious diseases.

The increase in the incidence of respiratory diseases—bronchitis and broncho-pneumonia—is no doubt attributable to a number of causes—the severity of the winter and the enhanced opportunities for droplet infection; the latter in turn provided by overcrowding and deficiencies of ventilation associated with black-out conditions.

During the two years 1940 and 1941—accidental mechanical suffocation (which in the main is a euphemism for “overlaying”) has made an unpropitious return to importance amongst the causes of infantile mortality. Seven deaths were so reported in 1940 and nine in 1941—a total of 16 in two years, which should be compared with 24 during the whole of the previous decade, or an average of 2.4 annually. “Overlaying” is usually accepted as evidence of a serious lack of parental care. It is possible, however, that weariness and fatigue of the parents, rather than gross carelessness may provide the explanation for the unwontedly high incidence of overlaying during these two laborious years.

The Infectious Diseases—Incidence and Mortality.

Despite the appearance and presence of other malign influences, 1941 escaped the attack of any major incidence of infectious disease. If we limit our attention to the notifiable infectious diseases (excluding however tuberculosis) and add influenza and diarrhoea to the group, we find that these conditions were responsible for 335 deaths, as compared with 303 in 1940 and 278 in 1939.

As factors of mortality the infectious diseases (again excluding tuberculosis) have the following ranking :—

	1941	1940
Pneumonia	196	192
Influenza	38	42
Whooping Cough	29	7
Diarrhoea	24	21
Diphtheria	19	9
Cerebro-spinal Fever	15	9
Measles	6	10

It will be seen that neither the enteric group of fevers nor scarlet fever—diseases of grim repute in times past—make an appearance in the list.

A similar table for the frequency of these diseases must leave influenza and diarrhoea out of the reckoning, for notification does not apply to these infections unless pneumonia is present in the one case or dysentery is suspected in the other.

	1941	1940
Measles	2713	3794
Whooping Cough	1564	284
Pneumonia	637	532
Diphtheria	344	155
Scarlet Fever	270	148
Erysipelas	98	128
Cerebro-spinal Fever	81	73
Dysentery	75	38
Enteric group	31 (all para-typhoid B)	11 (4 typhoid & 7 paratyphoid B)

Comparing this list with the record of previous years, we can say that the only diseases to display an excessive and unusual prevalence are the cerebro-spinal and paratyphoid B. fevers.

As regards the former, its association with war-time and those periods when the disturbance of civilian life and routine are inevitable, has been the subject of comment in earlier reports. Even though a tally of 81 cases does not constitute an epidemic, the significance of the increased incidence cannot be lost sight of. The conditions which promote an increase in tuberculosis, which are concerned in the spread of whooping cough, which give the epidemic wave of measles a flying start also operate in the case of cerebro-spinal fever. Overcrowding, herding together, inefficient ventilation, fatigue, the offensive weapons of open sneezing and uncontrolled coughing—these are the predispositions which facilitate the spread of the droplet borne infections. And though some of these factors are more difficult of investigation than others, there is something that the community could do, to its own benefit, in every case.

Cerebro-spinal fever was at one time a terrifying disease, by reason of its high mortality, which was frequently in the region of 50%. That fatality rate has fallen considerably since the introduction of the " Sulpha " remedies in the treatment of the disease. Nevertheless, the mortality amongst the 81 Newcastle cases was of the order of 18.5%, which though constituting a notable advance still leaves room for considerable improvement in the therapeutics of this infection.

During 1941, 31 cases of paratyphoid B. fever and 75 cases of dysentery were brought to notice, the more serious enteric fever being entirely absent. These two infections have been grouped together, because their spread is almost certainly due to the same circumstances. A number of the cases of paratyphoid fever were linked up with the widespread epidemics of this disease, which occurred in several parts of the country and were proved attributable to the use of contaminated artificial cream. But the majority of the cases of paratyphoid and almost all the cases of dysentery were not

traced to any common source. They arose as more or less distinct entities, separate and sporadic illnesses without any connecting factor. We have been studying the vagaries of dysentery in this City for the past 14 years, and it is becoming increasingly demonstrable that many of the minor bowel infections—bacillary dysentery in particular—and paratyphoid fever in a less degree—are almost as constantly present in our midst as are diphtheria and scarlet fever. Their existence and persistence is promoted by our somewhat negligent attitude as a nation, in respect of certain matters of personal cleanliness. On this particular topic silence is more common than speech, and it is surprising to find how widespread is that casual spirit which reflects not upon the methods whereby hands may become contaminated, and fails to realise—as Sir Arthur Shipley's graphic analogy has it—that bacteria leaving the Paradise Lost of the bowel frequently regain that Paradise by way of the mouth.

With regard to the other infectious diseases, only a few words need be said.

Scarlet fever continues to be in retirement if not in retreat. Four years have now passed since a death could be attributed to the disease in Newcastle, and coupled with this decline in mortality there has been, latterly, a reduction in the incidence of complications.

Some reference has already been made to whooping cough as a cause of death in the first year of life. In addition to the 13 deaths which occurred in infants, this infection was responsible for 16 others between the ages of one and five years. During this particular age period, whooping cough was the second most frequent cause of death, following closely in the train of tuberculosis. The importance of whooping cough can be gauged from the fact that during the decade 1931-1940 just ended, it killed 200 children in Newcastle, while diphtheria was credited with the deaths of 177. The ideal to be aimed at is that every child should be simultaneously immunised against both diseases towards the end of the first year of life. To wait until the first birthday has been passed may be dangerous as whooping cough frequently finds its victims at an earlier age.

The story of diphtheria in 1941 can be briefly told. The cases reported—namely, 344—were more than double the total for the previous year, when 155 were notified. The number of resultant deaths was relatively smaller giving a case mortality rate of 5.5% as compared with 5.8% in 1940. Nevertheless the 19 deaths which this case mortality represents need not have occurred, if the bulk of the population of the City had been immunised against the disease.

These salient facts appear worthy of remembrance. Firstly, all but two of these deaths occurred in children under the age of 15; secondly, not a single one out of these fatal cases had been immunised; and thirdly, although fifty children who had been subjected to the immunising process nevertheless contracted the disease, in most of these cases the attack was mild and in every instance recovery was complete.

On the whole, we are now less dogmatic than in times past about the efficiency of diphtheria immunisation as an absolute preventative of diphtheria. It would be rash to say that immunisation will banish diphtheria finally and permanently from amongst us. At the most we would claim (and it is no meagre or unsubstantial claim) that immunisation will render diphtheria a comparatively rare disease and that for the inoculated person who is unfortunate to fall a victim, it will be a disease almost without risk.

It behoves us, therefore, to prosecute with the utmost pertinacity, steadily and continuously, all possible measures for immunising the population. To this end during 1941, considerable efforts were made by the Health Committee in co-operation with the Education Committee and its staff, with the result that 14,684 children were immunised during the year. Adding this achievement to our previous efforts, it is possible to say that by the end of 1941 35% of the child population under the age of 5 had been immunised against diphtheria, and that 64% of the 5-15 year old group had been similarly protected.

These results, good though they are, are not sufficient to allay anxiety or to promote confidence. The apathy amongst the parents of children under 5 years of age is still marked, and our greatest triumph would be to overcome this reluctance so completely that every five year old child should arrive at school fully immunised and requiring at a later date only a "refresher" dose to maintain his immunity at concert pitch.

The General Morbidity.

In an earlier section of this report, attention was directed to the respective significance of the mortality from tuberculosis, and the newly ascertained morbidity due to that disease—how one was the history of the final outcome of events which had their beginning and followed their destructive course in years gone by, while the other was a reflection of something happening in the community at that immediate moment—the first signs of a complicated process in which personal, environmental and social factors were all actively operating.

In short, we saw a very simple demonstration of the fact that for the practical purposes of Preventive Medicine, the death returns are not necessarily the most illuminating guide. This is not to decry the validity or the usefulness of the knowledge gained from a study of the national and local mortality, for upon that knowledge was built much of the earlier fabric of our Public Health organization. But our more modern conception of the lines along which Preventive Medicine should develop, suggests that the clamant questions are—How do the people of England and Wales and of Newcastle live—and what must we do to obtain for them longer, healthier and happier lives?

In order to formulate the policies of the future, we will need to know much more than we do of the background against which people live, the economic swords that hang over them, their hereditary endowments and disabilities, the waxing and waning of their health and energy—in short, Medicine and Public Health must become more socially minded and must re-fit and refurbish their armouries accordingly.

One of the most fruitful sources of information would be some form of a careful investigation into the morbidity of a number of communities, each with differing characteristics—a full tale of their ailments, illnesses and disabilities over a period of two or three years. Registration of sickness on a national scale would probably be impracticable, or if practicable, would almost certainly yield a farrago of confusing and indeterminable material. Enquiries, painstaking and detailed, in a number of "type" localities would give more fertile results. So much for the future. Lacking our desired yard-sticks, it is impossible to give a precise statement as to the general health of the citizens of Newcastle in 1941. But it is possible to say that despite all the difficulties of the time, there has been no conspicuous deterioration in the physical well-being of our population. Nevertheless, we would be wise to remember that the trials and stresses and deprivations of war show their effects rarely as sudden catastrophes. More often they are slow to manifest themselves, insidious in their working, cumulative in their result. This word of warning is more for the morrows of 1943 and 1944. The yesterday of 1941 was relatively free from portents of impending disaster.

Comparisons of 1914-1918 and 1939-1941.

It may be of interest to readers to note the comparisons which can be made between the present war and its forerunner, and to

speculate whether the sequences of 1914-1918 will be fulfilled before our contemporary disturbance is victoriously concluded. The statistical data for the two epochs are set out in Table III.

The difference wrought by two decades of social changes and public health activities are clear to see—the diminished birth rate, the halved infantile mortality, the banishment of typhus fever, the declension of the enteric group of diseases, the suppression of syphilis, the continuance of diphtheria.

Let us turn our attention in other directions and note whether the trends of the earlier years have been reflected since 1939. As regards births and marriages the course of events has been the same in each period—a fall in the natality and a transient rise in the number of marriages.

The mortality position is different. Whereas during the first Great War (at any rate until 1918) both the general death rate and the Infantile Mortality Rate continued to fall, the reverse has been the experience during the present war. Of the two, the rising Infantile Rate has the greater potentialities for future concern; the general death rate is weighted by the inescapable burden of old age, and the calamities of air raids.

In 1941, as in 1916, pulmonary tuberculosis and cerebro-spinal fever were the two infections whose progress under war-time conditions foreboded most of immediate ill.

Cerebro-spinal fever is now, as regards mortality, but a shadow of its former self. For this we must thank the new therapeutics. As an infectious disease, striking where it will under its chosen conditions, cerebro-spinal meningitis is still difficult to control, but it is no longer the pestilence which slew by night and by noon-day, as it did a quarter of a century ago.

There are other indices of national and local health and well-being but the mortality and morbidity of pulmonary tuberculosis are the aptest to disclose our vulnerable places and to prove the strength of our defences.

Tuberculosis — The Tuberculosis Services.

It is our duty to face unpleasant facts, and our present situation in regard to pulmonary tuberculosis is one which it would be improvident to disregard. On the other hand, it would be unwise to allow our judgment to be swayed and an atmosphere of panic to be generated because of the unsatisfactory and disappointing returns for a single year. In point of fact the year 1941 was an improvement on 1940, but the great predominating and disturbing factor—namely, the war—still remains with us.

TABLE III.
COMPARISON OF 1914-1918 AND 1939-1941

	1914	1915	1916	1917	1918	1939	1940	1941
Population....	271523	278107	278107	278107	278107	293400	255900	254960
Birth Rate....	27.8	27.8	26.2	23.4	23.3	15.8	17.6	16.4
Births	7538	7545	7284	6495	6468	4646	4519	4176
Marriages	2717	3264	2620	2389	2544	3125	3361	2817
Death Rate	17.2	17.2	15.9	15.0	17.3	12.9	14.6	15.5
Deaths	4660	4771	4427	4174	4816	3661	3733	3951
Infantile Mortality Rate....	137	133	123	113	107	62	64	76
Deaths under 12 months	1029	1007	899	732	692	289	284	315
Pulmonary Tuberculosis								
Mortality Rates	1.38	1.37	1.50	1.48	1.41	0.82	0.98	0.98
Deaths	375	380	417	411	393	232	251	249
Cases of Typhus Fever	2	1	....	....	....	....	....	....
" " Enteric Fever	102	100	76	25	29	4	11	31
" " Cerebro-spinal								
Fever	1	27	43	32	16	5	73	81
" " Diphtheria	362	275	272	226	250	243	155	344
Deaths from—								
Influenza	22	22	36	27	680	36	42	38
Cancer	265	270	266	252	225	457	474	510
Syphilis (in 1st year of								
life)	13	9	14	13	11	1	1	....
Air Raid Deaths ....	....	1	....	....	....	....	9	115

There is one consoling grace. We started in 1939 with the positive advantage that the base-line from which improvement or recession is counted in the statistical assessment of the effects of tuberculosis was lower by 40% than in 1914. The Newcastle death rate from pulmonary tuberculosis in 1914 was 138 per 100,000; by 1939 it had fallen to 82. That difference represented a saving of nearly 170 lives annually to the City.

But to return to the war of 1914-18. One of the main epidemiological events of that period was the interruption which occurred in the ebbing of the tide of tuberculosis mortality. This was followed by an increased flow of deaths from the disease generally, while in particular communities such as prisons and mental hospitals, the death rate from the pulmonary form of the disease rose by 100%. After the war, the death rate from all forms of tuberculosis moved steadily downwards, and in this city, lagging though it did, in common with the whole of Tyneside, far behind the national rate, it reached its lowest point in 1939. In that year the proved new cases of pulmonary tuberculosis, and the fatalities from the disease were 347 and 232 respectively. With these figures all previous records were outdistanced. The year of Dunkirk brought a comparatively small increase in deaths, the total reaching 251, but the new cases rocketed to 475. That record, for which reasons were not difficult to find in the strain and exhaustion which were the gladly accepted lot of the workers in the factories, remained with us as a nightmare throughout 1941.

Fortunately in the event, the returns have not been so grievous. The deaths in 1941 were virtually the same as in 1940, but the new cases fell off considerably, and the number reported—namely, 379—though larger than we might wish, having the pre-war trend in mind, is materially better than we had reason to expect.

When the deaths and new cases during this war-time period are analysed and assigned to their appropriate age and sex groups, one most significant feature appears—the increasingly high death toll of pulmonary tuberculosis amongst young women between the ages of 15 and 35.

As to the current work of the Tuberculosis Services there is little to say. "Neglect no means" has always been the motto of the department, and during 1941 new ground was broken in company with the Child Welfare Services.

It is common knowledge that young children often pick up their tuberculous infection within the family. Sometimes an established cause of tuberculosis in a young child discloses the trail which leads to the discovery of a hitherto unknown case of pulmonary tuberculosis in one of the parents or even grandparents. On this occasion, the two departments have directed their energies in the opposite direction. All children under the age of five who are known to be, or to have been, contacts of new patients suffering from tuberculosis are handed over to the Senior Child Welfare Officer for supervision. In that process of supervision, modern methods of diagnosis—tuberculin testing and radiography—are applied. As a result of these investigations, practically 25% of the contact children were found to have been infected, and 10% showed signs of active disease. This 10% represented 12 children, all of whom were removed to hospital. In this group there was only one death.

Here then is another line of approach to the problem of combating tuberculosis. Only after several years of experience will we be able to assess its worth, but "prima facie" it would appear that early treatment along these lines will preserve for the community lives which might otherwise have been lost utterly, or shorn of half their potential usefulness.

The Child Welfare Services.

If we compare the infantile mortality rates for 1940, as they severally showed themselves in England & Wales, in the 126 Great Towns within the boundaries of the two countries, and in the City of Newcastle, we find that the general deterioration which marked the latter year was emphasised in our local community. Here are the actual figures:—

	1940	1941	% Increase of 1941 on 1940
England & Wales	55	59	7.3
126 Great Towns	61	71	16.4
City & County of Newcastle upon Tyne	64	76	18.8

Nevertheless, the relapse in the City infantile mortality rate, though by far the most important, was not the only disappointment encountered in the operation of the Child Welfare Services during 1941.

The numbers of infants and of toddlers attending the welfare centres both declined and the facilities of the clinics were utilised by each group to a smaller extent. In the case of infants under the

age of 12 months, the attendances have fallen by 14%, while for toddlers the parallel decline is 39% over all, and approximately 50% in some districts. Unhappily the neglect of the centres is most prominently displayed in precisely those areas where there is a continuing need of advice, guidance and support in all matters pertaining to infant and child nurture.

In the Annual Report for 1940, it was categorically proclaimed that the responsibility for the decline in the influence of the child welfare centres could be laid mainly, if not wholly, at the door of the National Milk Scheme. This view has been challenged in some quarters and it has been suggested that the retrogression is a war-time phenomenon, related to evacuation, to the falling birth rate, to domestic difficulties, to lack of interest, or to the countervailing effect of other activities. Be the causation as complicated as had been suggested, there remains the significant fact that all these various influences began to produce their compound and simultaneous effect shortly after October, 1940, the month in which the National Milk Scheme began to operate. The graphs of attendances at the centres (which have been maintained over several years) demonstrate with precision and clarity the difference between the months before and after the crucial date. Milk, however spilt or for what purpose, is not to be cried over, and accordingly during 1941 steps were taken to retrieve the position by other methods. Of these the most important has been the increase in Home Visiting, and concentrated attention has been given to the elusive and important "toddler" group. In 1940, 27,649 visits were paid by Health Visitors to "toddlers". This total was increased to 28,526 in 1941.

Home visiting is, of course, a much more expensive procedure both in time and personnel, than the holding of clinics, and if the work is to be done effectively, additional health visitors must be engaged for the purpose. Before this is done to any considerable extent, it would probably be advisable to give thought to the position of the Child Welfare Services in the panorama of health services which the post-war era will unroll. It is a little early to formulate any concrete proposals and until the basic substructure of the new health organisation has been disclosed, we can only suggest and speculate. In this connection the Senior Child Welfare Officer (Dr. F. J. W. Miller) has prepared an interesting and stimulating review of the position in Newcastle as he sees it after three and a half years experience of the department. His views and proposals are published as Appendix A of the present report, and attention is invited to them.

It is perhaps appropriate at this point to say a word about one of the less explored regions of Child Welfare—the care of the premature infant. One would not suggest that the field is completely untravelled, but in so far as Newcastle and the north of England are concerned, we are backward in our efforts to emulate the achievements of the many workers abroad and of the relatively few interested persons in this country.

Dealing only with live births (and it should be recalled that Prematurity as a cause of still births is only another aspect of the problem) 300 infants of the 4,500 born in Newcastle annually will be classified as “premature” in accordance with the existing standards. Of that 300, probably 75 will die either from prematurity alone, or from some associated condition. In practice the real risks fall upon 200 out of the group of 300 premature infants, and it is to this 200 and the 75 amongst them that are at present doomed to die, that all our endeavours, both preventive and corrective, should be directed.

A great deal of research has been carried out recently into the real causes of prematurity. Multiple pregnancies, malnutrition, overwork, the toxæmias of pregnancy, acute infections, tuberculosis, syphilis—these conditions in the mother are liable to produce prematurity in the foetus and infant. One thing is clear, namely, that proper and adequate pre-natal care of the mother increases the chances of the delivery of a living and viable child.

So much for the prevention of prematurity. Organized medicine, however, has to face the task of converting the premature infant into the successfully surviving child. The following are the more important components of a scheme with this objective :—

Firstly—We require teams of nurses, nurse attendants, and paediatricians with a first hand practical knowledge of the specialised techniques.

Secondly—We need to bring the premature infant within the purview of these teams. For this purpose, it would probably be advisable to make prematurity a notifiable condition, and to demand that the premature baby should be treated as an emergency. It would be an advantage also if an *expected* premature baby could be notified in advance.

Thirdly—Premature infants—if not born in hospital—should be admitted to hospital as a normal procedure, and special methods for their transportation should be provided.

Fourthly—Where it is impracticable for the premature infant to be removed to hospital, the services of the Prematurity Team should be available in the home, together with all the necessary apparatus of heated bed, oxygen, etc.

Fifthly—Any hospital which deals with a number of premature births annually should set up a special department for the purpose, furnished with heated and air-conditioned nurseries, incubators, etc. These departments would be manned by the prematurity teams already referred to, and as far as possible the treatment of the premature baby should be concentrated in such units.

Sixthly—The services of paediatricians should be readily available without charge, for the purpose of consultation—both at the hospital and in the home.

Schemes of this kind constitute a new field of preventive medicine, and their success in the United States should stimulate their establishment in Great Britain.

Maternity Services.

An outcome of the war has been the diversion of midwifery to the organisations of the Corporation. Fortunately the latter have been able to meet the calls upon their services and in doing so have given relief to the Princess Mary Maternity Hospital and the hardly pressed general practitioner.

A happy decision of the Ministry of Health brought about the re-opening of the Gilsland Convalescent Home as a maternity home and hospital under the administration of the City Health Committee. This occurred in July, 1941, and between that date and the end of the year more than 600 expectant mothers were admitted to Gilsland. The demands upon the Home were increased markedly during the last few months of the year when enemy air raids became more frequent. This re-opening of Gilsland placed additional responsibility upon the Maternity Officer—Mr. Linton M. Snaith, F.R.C.S.—but on this occasion it was found possible to obtain the services of a Resident Obstetric Officer and Mr. Snaith's duties became those of a visiting superintendent consultant.

The distribution of births as set out in Table IV shows clearly the scope of the Corporation's Maternity Service, and the relatively modest extent to which hospital treatment has replaced domiciliary midwifery. Seventy out of every 100 confinements are now conducted under one or other part of the Health Committee's Maternity

Scheme, but only 42% of the total deliveries occur in hospitals. According to individual opinion, this latter percentage contrasts favourably or unfavourably with the records of other large cities, where as many as 80% of expectant mothers are delivered in hospital. In view of the relatively poor standard of housing accommodation in many parts of Newcastle, an increased demand upon the hospital facilities should be encouraged. This demand however can not be met except by a thoroughgoing reorganisation of the existing arrangements, both municipal and voluntary, and such an undertaking becomes more and more difficult as the war proceeds. For the time being, it would appear that Gilsland must act as a safety valve, pending a suitable opportunity for comprehensive replanning.

It is eminently clear that the provision of maternity hospital accommodation adequate to meet the needs of the City and the other adjoining local authorities, will be a task and a duty of high priority in the early post war period.

TABLE IV.

BIRTHS — 1941

Domiciliary Cases :

Attended by Doctors	....	....	....	....	172
Attended by Doctors and Municipal Midwives	....	....	....	....	402
Attended by Municipal Midwives	....	....	....	....	1,688
Princess Mary Maternity Hospital (District)	....	....	....	....	189

Institutional Cases :

Princess Mary Maternity Hospital	....	....	....	....	354
Newcastle General Hospital	....	....	....	....	690
Gables Maternity Home	....	....	....	....	74
Other Nursing Homes	....	....	....	....	82
Gilsland Emergency Maternity Home	....	....	....	....	600
					<hr/> 4,251 <hr/>

NOTE : Heavy type indicates the work of sections
of the Municipal Midwifery Organisation.

Venereal Disease.

Historians impress upon us that history does not repeat itself precisely and in detail. Nevertheless, in circumstances not altogether dissimilar, under stresses of comparable severity, the natural ferments in the mind of men recreate trends and movements, which though not identical with those of previous times, have yet, something of a likeness and exhibit the same tendencies.

Already in this report attention has been directed to the repetitive activity of tuberculosis under war-time conditions. An even better example is to be found in the record of Venereal Disease.

During the earlier period of the First Great War, statistical information of a reliable kind as to the prevalence and incidence of Venereal Disease amongst the civilian population was almost entirely lacking. By the end of 1915, however, there were sufficient straws of popular and medical opinion and a mass of data from military sources to make it clear that these infections, if not already more obviously manifest in the general population, were likely to become so at an early date. On the 12th July, 1916, the Venereal Diseases Regulations laid down the basis of our present organisation for the ascertainment and treatment of Venereal Disease. The success which that scheme had achieved prior to the Second Great War could be measured by several yard-sticks—a reduction in the number of new infections attending the clinics; the recession of locomotor ataxia and certain kindred disorders; the virtual disappearance of congenital syphilis as a cause of mortality in the new-born.

But amongst the collection of statistical data, there were indications of a limited failure of this first mobilisation against Venereal Disease.

It is common knowledge, for example, that the number of known female cases of Venereal Disease is always considerably less than the male total. There is also reason to believe that the difference in incidence between the sexes is to some extent fallacious, and that much venereal infection goes undiscovered or untreated or partially treated amongst female victims. One somewhat curious fact in support of this view is the increase in syphilitic arterial disease in women, which has become evident in recent years.

With this knowledge in their possession the advent of the present war was a time of foreboding amongst Public Health Officers. For a time, indeed, it seemed as if their gloomy prognostications were to be unfulfilled. The year 1939 concluded with a moderate increase in early syphilis in both males and females, but this was balanced, in part, by a slight reduction in gonorrhoea. In 1940 there was a change for the better as regards early syphilis in males, and gonorrhoea continued on the down grade amongst both sexes—at any rate apparently. The last few months of 1940 disclosed the first really disturbing feature—a marked increase in the incidence of early syphilis in women. The records showed that in this group the incidence for the final quarter of the year was twice

the stated figure for the same period in 1939, and three times higher than in 1938.

For 1941, the tale was even more melancholy. Early syphilis increased both in males and females, and the final records showed that amongst males five cases were now coming to notice where two had come in 1938, and that for women the comparable ratio was three to one.

The incidence of gonorrhoea in both sexes as gauged by the entirely inaccurate standard of attendance at the Clinic, was apparently greater than in 1940, but less than in 1938. It is obvious that in so far as gonorrhoea is concerned the clinic figures, perhaps never very closely related to the facts, are now altogether misleading. The introduction of the "Sulpha" remedies has brought the disease once again within the purview of the general practitioner, and the services of the clinic are only called upon to deal with the cases which fail to respond to this form of treatment.

In a word, we are confronted with a proved increase in the incidence of syphilis in both sexes and the suspicion, which a comprehensive enquiry would undoubtedly confirm, that the position in respect of gonorrhoea is precisely similar.

Some of the causes of this retrogression can be briefly stated; others would involve a disquisition upon the biological education of the community and kindred topics. The more notable, though not necessarily the most potent contributory factors are amongst the following :—

- (a) The emotional disturbances due to the war leading to a relaxation of moral standards.
- (b) The domestic upheavals associated with the transfer of man and woman power in conformity with the Government's industrial policy.
- (c) The presence of large bodies of troops in areas where the efforts made to organise their welfare and entertainment have fallen short of the optimum.
- (d) The congregation in our midst of large bodies of allied or friendly sea-faring men.

None of these causes is capable of complete eradication, but something by way of improvement can be done under each heading. Education and welfare are the activating watch-words. But action is another requisite and in so far as action can be made direct, the results may be quicker to show themselves. In any scheme which is formulated special attention must be given to the hidden foci of infection—the women, who suffering from venereal disease without their own knowledge, are likely to transmit syphilis to their children, or will fail in their duty of childbearing by reason of sterility, which is the aftermath of gonorrhoea.

It would seem desirable that the action to be taken should include :—

1. Some form of notification of Venereal Disease. Whether this should be general or limited to certain special groups will be for the Government to determine. There seems to be good reason for requiring the notification of congenital syphilis.
2. A definite and organised campaign of contact tracing. If the infecting person, as well as the infected, can be brought under treatment, by persuasive means, considerable progress will have been achieved. But such contact tracing requires special aptitude and technique and comes within the province of the trained almoner.
3. Comprehensive measures to ascertain whether expectant mothers are infected with syphilis or gonorrhoea. This will involve routine blood and other examinations, but as a piece of organised medicine it is the easiest proposition so far.
4. A half-way house between the V.D. Clinic and the Department for Diseases of Women, to which women suffering from minor female disorders (which may possibly be venereal in origin) can repair for advice and treatment. These "Ailments of Women" clinics can make a valuable contribution, not only as clearing stations for venereal disease, but in the regulation and maintenance of the general bodily health of women in business and industry.
5. Increased facilities for the treatment of the merchant seamen, with a view to ensuring efficiency and continuity of treatment.

The Municipal Hospitals

During 1941, the City Health Committee, through its appropriate sub-committees, administered a hospital service of quite considerable extent, embracing eight institutions with a total accommodation of over 3,000 beds. These beds were distributed amongst the following institutions :—

	BEDS	PATIENTS ADMITTED DURING 1941	
City Hospitals for Infectious Diseases	510	2598	
Barrasford Sanatorium	95	224	
Newcastle General Hospital	1326	11542 (4487)	} <i>Emergency Medical Service</i>
Shotley Bridge Emergency Hospital	1028	3446 (2964)	
Gilsland Emergency Maternity Hospital	100	600	
Whitton Tower Convalescent Home	25		
Shoreston Hall Children's Home	22		
Wellburn Children's Home, Ovingham	20		

No fewer than 18,410 patients were treated in these various institutions, and of that total 8,051 were cases for which the Emergency Medical or Maternity Schemes of the Ministry of Health accepted financial responsibility. The personnel employed in and about the hospitals comprised approximately :—

Consultants	36
Resident Medical Staff	32
Nurses, Midwives and Auxiliaries	793
Clerks	67
Porters and Domestics	408

The work of each and every of these institutions has been carried out under conditions of great difficulty, and the many problems which have beset Medical Superintendents and Matrons—problems which arose from black-out, fire-watching, rationing, restricted leave, and an ever changing staff—have been faced and resolved in a manner which deserves the very highest and sincerest praise. It is impossible to deal with the work of every institution in detail, and therefore a few words regarding the three largest—the City Hospital for Infectious Diseases, the Newcastle General Hospital and the Shotley Bridge Emergency Hospital, must suffice.

The City Hospital for Infectious Diseases.

The City Hospital for Infectious Diseases is the senior of the Corporation's own institutions for the treatment of the sick, being the lineal descendant of that House of Recovery which was established beyond the west walls in 1804. During the present war, although suffering the loss of part of its accommodation which was found to be incapable of protection against the blast of exploding bombs, it has provided a full service for the City and has been used abundantly by the Armed Forces. Between September 1939 and December 1941, no fewer than 1,259 Service patients were treated in the hospital, many with relatively trivial disorders such as Scabies and the ignominiously named German Measles; others suffering from the one-time terrifying disease—cerebro-spinal meningitis—which now, thanks to modern chemotherapy, is a condition from which patients are definitely expected to recover, instead of the reverse.

Only in one direction has the hospital been handicapped by reason of diminished accommodation—namely, in the investigation of patients suffering from pulmonary tuberculosis. The increase in the incidence of this disease has caused greater claims to be made on the beds provided at Walker Gate for the preliminary investigation of this type of case, and only by the exercise of considerable administrative dexterity has the Tuberculosis Officer found it possible to prevent the building up of a waiting list. So far this unhappy bottle-neck has been avoided, but it may be necessary in the near future to provide additional beds for this purpose at Barrasford itself.

As regards the day-by-day administration of the hospital, this has been carried out by the Deputy Medical Officer of Health and Medical Superintendent—Dr. E. F. D. Dawson-Walker—with the co-operation of the Acting Matron (Miss J. Laing) and the Steward (Mr. H. Phillips). Assisted by a loyal and willing staff

of nurses and domestic helpers, they have played an important part in maintaining a first class clinical and epidemiological organisation for the service and protection, not only of the City, but of a considerable section of the Armed Forces in its vicinity.

It may be appropriate here to say a few words as to the future of the City Hospital. For 50 years it has occupied its present site in the angle of two important railway lines—a fact of which certain over-head operations of the enemy have constantly reminded us. It cannot be said that the amenities of the neighbourhood are improving, despite the efforts of the City Architect, the City Property Surveyor and the gardening staff to add to the intra-mural conveniences and features of the hospital. In brief, the hospital is becoming more and more embedded in a mass of industrial and residential properties. It is bisected by a major road, and surrounded by a welter of rail and road traffic. The question of the removal of the hospital has been mooted on previous occasions, even within a few years of its establishment in 1888, but never at any time has the suggestion received any measure of acceptance. If in the near future another opportunity should arise (and there is a possibility that changes in social legislation may indirectly bring this about), then it would be highly desirable that the Health Committee and the City Council should review the whole matter realistically, boldly and with an open mind.

The Newcastle General Hospital.

The year 1941 was a record for the Hospital in practically every respect. Admissions were increased by 1,800 over the previous year, and the surgical work of the hospital again took an upward turn. These advances were largely due to two causes—firstly, the hospital became the main receiving hospital for Service patients in the Northumbrian area; and secondly, the transferred Department of Neurological Surgery, which had travelled from Newcastle to Stannington and thence to Shotley Bridge, returned to its original home. Only in the work of the Maternity Department is there any diminution to report. But the reduction in the number of cases treated, from 858 in 1940 to 719 in 1941, was the result of a deliberate decision that overcrowding should not occur in the wards of the Maternity Unit. Strict adherence to this decision and to the policy of admitting cases in accordance with their need for hospital supervision and care (rather than on the basis of “first come, first served”) were responsible for this apparent decrease in the use of the facilities of the Unit.

The statistical details which disclose the amount of work carried on in the hospital, and the trend of events during the past 12 years, during which the hospital has been a municipal institution, are set out in Table V.

TABLE V.

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
1940	9,763	2,937	858
1941	11,542	3,866	719

These figures whilst stating the cumulative effort of the hospital do not show how every section of its organisation has been working at concert pitch throughout the year. Where everyone has co-operated in the achievements of the hospital, it would be invidious to single out any single department or individual. The thanks of the Ministry of Health and the City Health Committee are due to the large bodies of medical personnel, nursing staff and domestic assistance, which have made their hospital what it is—a well-equipped, unceasingly active and vital factor in the health services of the North of England.

To the restriction indicated above, one or two exceptions may be permitted. A hearty welcome must be extended to Mr. G. F. Rowbotham, F.R.C.S., who came from Manchester to take charge of the Department of Neuro-surgery in succession to the late Mr. A. R. D. Pattison, whose pioneer work in the department was terminated unhappily all too early. Mr. Rowbotham has already established himself in the hospital and in the medical life of the neighbourhood.

Finally, the occasion demands and their efforts merit, that thanks and congratulations should again be extended to the Medical Superintendent—Dr. G. P. Harlan—and the Matron (Miss D. R. Gibson) for all they have done, with such constant devotion and unflagging zeal.

Shotley Bridge Emergency Hospital.

If the responsibilities of the Medical Superintendent and Matron of the Shotley Bridge Emergency Hospital were slightly less onerous than those of their opposite numbers at the Newcastle General Hospital, the problems for which they had to find expedient solutions, and the local difficulties which they were called upon to circumvent or surmount were proportionately more numerous. It is unnecessary to say that both Dr. G. F. Duggan and Miss J. L. Watt were equal to every occasion.

When the hospital opened in September, 1939, it comprised some 300 beds in the main building of the Mental Deficiency Colony, and a somewhat indeterminate number in a miscellaneous collection of tents. The passage of time replaced tents by huts and before the middle of 1940, 850 beds were available in the hospital. At the same time it was becoming evident that unless huts were to be used for such administrative purposes as stores, laboratories, and the provision of recreational facilities, it would be necessary to take over the accommodation occupied by the residual portion of the Colony. This amounted to five villa blocks on the periphery of the estate. With the co-operation of the Mental Hospitals Committee huts were built in the grounds of the Mental Hospital at Gosforth and thither the remaining 150 patients were removed in May, 1941. The five villa blocks were a distinct acquisition to the Emergency Hospital, and have provided a range of valuable accommodation which is used for a variety of purposes.

The total bed accommodation of this hospital is now approximately 1,000 beds and during the year 1941, 3,446 patients were dealt with.

The majority of patients admitted were Service patients, either admitted direct, or transferred from the primary receiving hospitals, for convalescence or for treatment in the three special centres which are based on the hospital. These centres were originally two in number—one for psycho-neuroses, the second for Maxillo-facial injuries. In May, these were joined by the Neuro-surgical Department of the Newcastle General Hospital, on its evacuation from Stannington. Later in the year, however, the Neuro-surgical Centre returned to the Newcastle General Hospital and the Department of Thoracic Surgery of the same hospital, which had been sojourning at Stannington, took up its war-time station at Shotley Bridge. Both the Maxillo-facial Centre and the Department of Thoracic Surgery are concerned very largely in the treatment of

civilians, and they derive their patients from throughout the whole northern defence region. Here again the wide cover of the Emergency Medical Scheme has been of benefit to civilian patients, many of whom might otherwise have been treated under less satisfactory conditions, or have languished on hospital waiting lists for months or even years.

The great new hospital at Shotley Bridge is one of the outward signs of the activities of the Emergency Medical Scheme of the Ministry of Health, but the Ministry would be the first to recognise that its establishment would have been hardly possible without the co-operation and public spirit of the Mental Deficiency and Health Committees of the Corporation.

Hospital Co-ordination.

Reference was made in the Annual Report of 1940, to the steps taken under the shadow of great events, to set up an Advisory Council for the North-Eastern Region. The less strenuous months of 1941 saw that progress carried through to completion and the Council with its Divisional Committees, and its instruments for administration and counsel, the Chairman's Committee and the Medical Advisory Committee, are now important and recognised participants in the work of those public and voluntary agencies which have the health of the community as their special interest and care.

The Council has already assumed, with the good will of those various agencies, special responsibilities which only could be carried, with difficulty, by any other public body. It has instituted surveys into the Pathological Services of the Region, it is investigating the range of hospital facilities, and is undertaking an enquiry into the arrangements which exist for the treatment of fractures and the rehabilitation of the injured. All these are tasks entirely within the scope of the Council, and upon the findings of the several surveys, future policy can be based to the great advantage of the regional community as a whole.

Furthermore, as stated on a previous occasion, the Council forms a common meeting ground for men and women of good will and high ideals of service, whose selfless aims are the alleviation of suffering and the creation of healthier living for everyone.

The Civil Defence Medical and First Aid Services.

The work of the Civil Defence Services was maintained at its high standard of efficiency throughout 1941. Only minor changes were made in the organisation, and the "75 point" system proved its

practicability during the desultory raiding which characterised the enemy's efforts. On the one important occasion, early in September, when a severe attack was made upon the City, the services carried out their tasks with despatch, determination and courage, and earned the unstinted commendation of those in authority.

The officers in charge—Dr. Gavin Muir (First Aid Commandant) Mr. T. Brooke Davison (Ambulance Officer), Mr. R. Dobbin (Staff Officer), Mr. W. Gray (Head of the Mortuary Organisation)—have earned the thanks of the citizens of Newcastle for the long hours of planning, training and administration which have built up a service of such high quality and well-merited reputation.

One interesting outcome of the September raid is deserving of notice. A large fire was started in the Manors Goods Station—quantities of flour, sugar and fat were converted by water used to extinguish the fire into a compost which was widely dispersed in the nooks, crannies, and crevices of the building. This compost became a breeding place for the common house fly. Within fourteen days of the fire, the whole of the centre of Newcastle was invaded by hordes of *musca domestica*, which were found at distances of as much as half a mile from the central breeding ground. In some houses the plague was so great and the importunity of the insects so persistent that to drink a cup of tea under reasonably hygienic conditions it was necessary to use a straw under cover of a saucer as an umbrella.

Mr. Alfred Hedley.

The Health Committee suffered a grievous loss by the death of its Chief Clerk, Mr. Alfred Hedley, who died, virtually in harness, on April 22nd, 1941. For forty years, except for a period of four years meritorious service with the Army during the Great War, Mr. Hedley had been a member of the office staff, rising from its very lowliest grade to the top of the ladder. To say that he was part of the stuff and fabric of the department, or that some portion of his personality had become an essential constituent of the very atmosphere of the Town Hall is not an exaggerated use of language. He was a part of all he met and did, and the value of his work is incapable of true assessment. The Health Committee never had a more faithful servant and his untimely death at the age of 56, leaves all of us who shared his labours, bereft of a good friend and a loyal comrade.

Conclusion.

In these pages I have striven to give some account of the work of the Health Department during the second full year of the Second World War. It has been difficult, if not impossible, to give a balanced presentation of the movement of events, of things done, of projects in contemplation, of trends and tendencies, and I am very conscious of the deficiencies of the report. Nevertheless, it is here for reference and future historians may perhaps find in its pages something from which to reconstruct the spirit of these days—our difficulties, our fears, the disappointments and the achievements.

It remains for me to thank you, Sir, and the members of the Health Committee for that unfailing consideration and kindness which have lightened the labours of the year, and brought to them a tincture of pleasure and satisfaction. My thanks are also due to the staff—to Dr. Dawson-Walker, Dr. Miller, Dr. McCracken and Mr. Gilhespy—whose collaboration and assistance, ever ungrudgingly and cheerfully given, have availed to convert possibilities into actualities and visions into things accomplished.

I am, Sir,

Your obedient servant,

J. A. CHARLES,

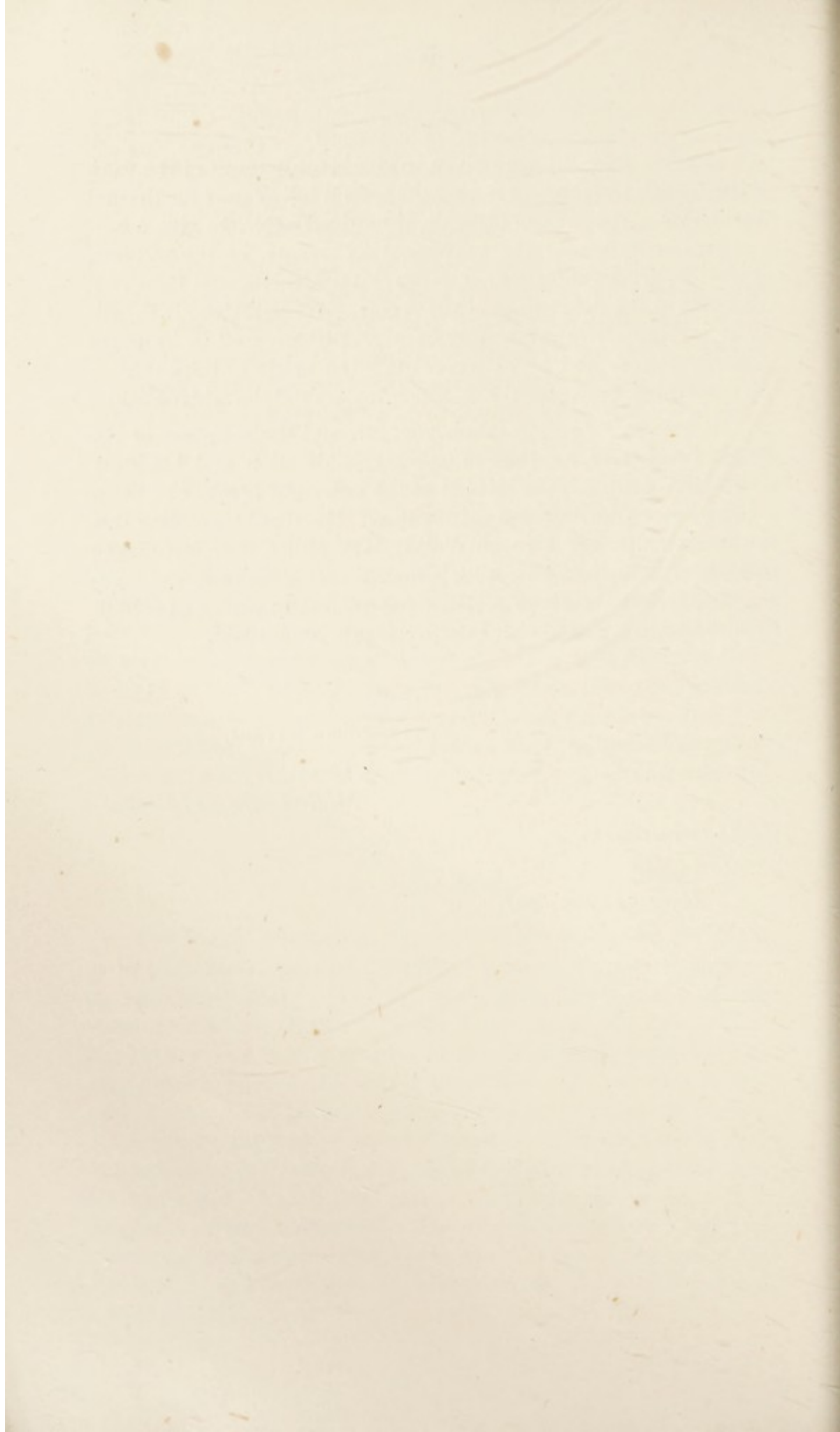
Medical Officer of Health.

Health Department,

Town Hall,

Newcastle upon Tyne.

June, 1943.



MEMORANDUM

ON CHILD WELFARE

IN NEWCASTLE UPON TYNE

1 — Introduction : Objects of Child Welfare Service.

2 — Discussion of Child Welfare Service.

(a) CARE OF THE INFANT AND CHILD.

(i) Work in Child Welfare Centres.

(ii) Work on the District.

(b) INFANTILE MORTALITY.

(i) Neonatal mortality.

(ii) Post-neonatal mortality.

3 — Place of Child Welfare Service in teaching and research.

4 — Conclusion.



MEMORANDUM ON CHILD WELFARE IN NEWCASTLE UPON TYNE

1 — Introduction.

There is no doubt that the Child Welfare Service has been one of the factors in bringing about the reduction in the number of infant deaths and the improvement in the physical condition of young children which has occurred in the last thirty years. The infantile mortality of Newcastle upon Tyne is, however, still high and from published works we know that the physical condition of children over the age of one year leaves much to be desired.

In view of these facts, therefore, the question may fairly be asked whether the Child Welfare Service is as effective as it should be and, if not, what can be done to increase its efficiency. With this in mind, this memorandum is designed to discuss briefly the organisation of the Child Welfare Service in Newcastle, with special reference to the prevention of infantile mortality, the opinions expressed herein being based upon my experience and observations during the past three and a half years.

The primary objects of the Child Welfare Service can be stated shortly as follows :—

- (1) to prevent infant deaths.
- (2) to further the normal development of children from birth to the age of five years.

In addition to these fundamental objects I would, however, add a third which, if pursued, would ensure that the Service would contain within itself the necessary impetus for growth and development, and would prevent isolation from both practical and academic paediatrics. This third object may be stated in two parts :—

- (1) to take an active part in the teaching of paediatrics to medical students and Health Visitors.
- (2) to act as a branch of research into child development and the problems of preventative paediatrics.

Before entering upon a discussion of the organisation it must be noted that in two aspects the conditions which exist to-day are different from those which held when the Maternity and Child Welfare Services were first started :—

- (1) That the reduction in infant deaths has been achieved largely in the deaths of children after the first month of life so that at the present time the number of deaths in the first month forms a greater proportion of the total infant deaths than it did previously.

(2) That the grosser aspects of bad external environmental conditions have, generally speaking, been ameliorated by the improvement in the standard of living and popular knowledge and education, so that attention must now be directed towards details which previously were either unrecognisable or were hidden by more obvious errors. To do this requires an accurate and modern technical knowledge of the subject.

While, therefore, there is still great room for improvement in the social and economic conditions of a large proportion of our population and the biological minimum in infant deaths will not be approached until this improvement has been achieved, it must be recognised that economic conditions merely form one aspect of a complex series of factors which together make up the child's total environment, and that improvement in social conditions, although they might be expected to bring about a further diminution in the death rate of children over the age of one month would not necessarily be followed by a dramatic reduction in the neonatal death rate.

2 — The Child Welfare Service.

For the purpose of this memorandum it will be convenient to discuss the two objects of the Service, the care of the infant and child and the prevention of infantile mortality separately, though it is evident that measures taken in respect of one may have an influence upon the other.

(a) — CARE OF THE INFANT AND CHILD.

The two parts of the Child Welfare Service connected with the routine care of children are :—

(i) attendance of the mothers at Infant Welfare Centres during a fixed session when a doctor is available for consultation and from which the infants or children may be referred to clinics where facilities for special treatment are provided, and

(ii) home visiting carried out by Health Visitors.

(i) Since September 1939, but especially following the introduction of the National Milk Scheme in August 1940, there has been a sharp fall in attendance of children; infant attendances having fallen by 25% and toddlers by 66%. This fall in attendance has been greatest in the poorer areas of the town and has therefore taken place in the sections of the population who are in greatest need of assistance and instruction and after due regard for factors such as the increase in the employment of married women, the difficulties attendant upon war-time shopping, it is an inescapable conclusion that the fall is due principally to the removal of material benefit in the form of dried

milk upon attendance at the Centre. It is impossible to know if the National Milk Scheme in its present form will continue after the war but it is difficult to think that it will entirely disappear as a measure designed to improve the level of nutrition of the nation.

The diminution in attendances resultant upon this scheme is a serious weakening of the effectiveness of the Child Welfare Service. It is, however, probably not entirely without advantage for there can be no doubt that particularly in the poorer areas, the popular idea of an Infant Welfare Centre has been that of a depot for the distribution of free milk and other benefits. If this association of the Infant Welfare Centre with charity is broken, the Authority will have the opportunity of substituting the correct conception of the Infant Welfare Centre as a place where good practical advice may be obtained concerning the care of children.

Consideration of the quality of advice given at Infant Welfare Centres necessarily raises questions of the best type of medical assistance. Obviously the attendance at any Welfare Centre where charity is not dispensed is to a large extent a reflection of the personality of the doctor attending the session, and a doctor who understands the difficulties of the parents and is interested in children will have a greater influence than a person whose interests are not primarily in this direction. Apart, however, from any consideration of the personality of the doctor, there are various methods by which a Welfare Centre may be staffed. The Medical Officers of Welfare Centres may be :—

(i) whole-time members of a Child Welfare Department. In the majority of this type of appointments the Officer's whole time is spent in sessional work and he or she is not attached to any hospital and is, therefore, denied that direct responsibility for a patient which alone appears to turn a medical practitioner into a clinician. Two other disadvantages in the employment of full time Medical Officers are that under the present arrangements only the minority of the Officers entering such appointments are adequately trained in paediatrics, and the nature of the work is such that without other stimulus any initial enthusiasm must inevitably disappear. A possible advantage of the system but one which appears to be far outweighed by the disadvantages is that under a Senior Officer a more uniform type of advice may be given in the Centres and more control exercised over the Officers than when doctors are engaged upon a sessional basis.

(ii) Part-time Officers. In Newcastle the sessions are largely conducted by part-time Officers engaged on a sessional basis and we

are fortunate in as much as there is in the City a group of medical practitioners with an active interest in children and wide experience in the practice of paediatrics. Subject to the condition that none of these doctors should be employed in Infant Welfare work for more than 3 - 4 sessions weekly, there is little doubt that this system is preferable to the full-time Officers without hospital or clinical responsibility.

In addition to the above there are certain other possibilities which might be of limited application :—

(a) that the appointment of House Physician in the Children's Department of the Newcastle General Hospital should carry with it attendance at one Infant Welfare session weekly. The advantage of attendance at a Centre, whilst holding a hospital appointment, would be that such an appointment could be regarded as preparatory to Child Welfare work or would enable hospital residents who wish to enter later upon a career in paediatrics to obtain experience in the development of normal children and give an introduction to an understanding of the social and economic problems which arise in rearing a family.

(b) One or more sessions per week might be given as a short term appointment (2 - 3 years) to assist a research worker in paediatrics who would be expected during the tenure of his appointment to publish original work, for example, a study of growth rates of premature children and the factors by which they are affected.

A further important point governing the effectiveness of the medical advice given at the Child Welfare Centre is the number of children which a doctor should be expected to see during the course of a two hour session. I consider that any number more than twenty is undesirable and that a maximum should be set at twenty-five for to be useful the consultation must not be hurried and mothers are often slow to tell their stories. As far as possible the selection of children for consultation should be made by the Health Visitor during the session, although any parent who particularly wishes to have access to the consulting room should not be refused.

At the present time there are two Health Visitors in attendance at each session and each Health Visitor employed by the Authority spends an average of $2\frac{1}{2}$ days per week in Welfare Centre work. Since the introduction of the National Milk Scheme Health Visitors have been relieved of the task of distributing dried milk and they should now be encouraged to take a greater part in the actual conduct of the clinic by the giving of practical advice to groups of mothers

by means of health talks or to the individual in conversation. I hope that never again will it be necessary to employ Health Visitors in the distribution of milk or other substances.

Auxiliary Clinics.

Facilities for orthopaedic, dental, and ear, nose and throat treatment are provided by the co-operation of the school authorities and generally speaking work satisfactorily. Up to the present time, however, no provision has been made for the treatment of the so-called "difficult" child and in this respect the services of a child psychologist would be invaluable. Such a person could readily be employed for 2-4 sessions per week and if a suitable arrangement could not be made for attendance upon a sessional basis, consideration might be given to a whole-time appointment as part of a joint scheme with other authorities. At this stage it might be useful to mention the value of active liaison with nursery-schools for the treatment of the same type of child for there is no doubt that admission to a good nursery school is one of the most effective methods of counteracting a bad domestic environment.

Educational Activities.

One of the most important activities of the Welfare Centre should be the dissemination of educational advice by means of advertising, display of posters and wherever possible, the use of films. Such methods of education must be easily appreciable, readily memorised, topical and changing and in this respect, I suggest it would be more effective if the advice and services of a professional advertising specialist could be obtained.

Communal Activities.

Finally the mother should be encouraged to look upon the Child Welfare Centre as a focus for communal and social activities. Experiments in attempting to form mothers' committees would be interesting for by this means it might be possible to discover common interests. With the correct type of guidance the mothers might themselves undertake responsibility for social activities and come to feel that the Welfare Centre was in a sense an institution which thrived because of their efforts.

(ii)—*Home Visiting*, always important, has with the recent fall in the attendance at Welfare Centres become more than ever necessary for, as pointed out previously, the fall in attendance has taken

place in the very sections of the population which most need advice. The effectiveness of district visiting would appear to depend upon :-

(a) the regularity of the visits.

(b) the technical knowledge of the Health Visitor.

(c) the personality of the Health Visitor and her capacity to enthuse the mothers of her district with the care of their infants and young children.

The total number of visits made by the Health Visiting staff in 1941 was 75,392 of which 66% or 49,592 were to children and of these only 28,526 to children between one and five years. This number is not significantly different from the number of visits made in the years 1937 and 1938 and it would be advantageous to examine this figure by contrasting it with the number of visits which would theoretically appear desirable for the infant and pre-school population of the City.

The first visit of the Health Visitor should be immediately after the midwife has ceased her attendance, whenever possible on the 15th day, or in the cases attended by the municipal midwifery service, the first visit may be paid a day or so before the midwife ceases attendance and thus continuity of supervision achieved. During the rest of the first month, two further visits should be given but more may be necessary. Thereafter for the remainder of the first year a monthly visit is required. In the second year four to six visits should be made and in the 3rd and 4th year, three to four visits annually. If it is assumed that the children who do not require visiting are counterbalanced by those requiring extra visiting, it is possible to make an estimate of the number of visits required each year as follows :—

1st year	4,000 children	...	...	56,000 annually
Average	14 visits			
2nd year	3,500 children	...	...	17,500 „
Average	5 visits			
3rd, 4th and 5th year	3,500 children	...	...	36,750 „
Average	3½ visits			
				<hr/>
				110,250 visits
				<hr/>

If the visits to children are taken to represent 80% of the total visits (others being made up by special visits, visits to infectious diseases, etc.) the grand total for any year should be approximately 137,750. To carry out this number of visits effectively while engaged for two days each week in clinics would require approximately 37 Health Visitors, excluding the Chief Health Visitor and her Deputy.

Only by constant visiting has the Health Visitor any chance of becoming an influence in the home but, in addition, before the visits can become effective, the quality of the advice given must be ensured and the Health Visitors must have available accurate, practical information and be able to give it in a form which the mother can appreciate. Particularly should she have efficient and accurate information concerning child development, infant feeding, breast and artificial, infant and child hygiene. Finally she should have a good working knowledge of the disorders of infancy and childhood.

Yet I regret that I must record that in my experience, the average Health Visitor has not received such a training and does not possess this technical equipment. This fact, which I regard as a result of misdirection of emphasis in the training of the Health Visitor, I consider to be one of the fundamental reasons why so much of the work of the Child Welfare Service appears to yield only moderate results. I would therefore suggest that serious representations be made to the Authorities responsible for the framing of the syllabus of training of Health Visitors and the conduct of the examination that a revision of the syllabus is required and also that provision should be made for the Health Visitor, like the midwife, to have regular refresher courses which would include work in paediatric units of maternity hospitals and in the wards of children's hospitals, during which she would receive also up-to-date information on developments in social medicine and nutrition. Such an arrangement would bring the Hospital nursing staff and the Health Visitors into contact to their mutual advantage and do something to destroy the isolationism of both. In our department I would suggest :—

(1) Arrangements should be made for the Health Visitors to return to Hospital for periods of non-residential day duty in the children's wards and maternity unit of the Newcastle General Hospital.

(2) That a definite revision course should be arranged with discussion-lectures and tutorial visits to Welfare Centres where the

Health Visitor could be given instruction in the practical advice to be given to mothers.

(3) That consideration should be given to the revision of the terms of appointment of the Health Visiting staff in Newcastle in order that the best type of applicant may be attracted to the Staff, the Committee may enjoy a wider field of selection and that in the next few years a first class, enthusiastic and responsible Health Visiting staff might be built up.

In addition to the responsibility of Health Visitors to their own Child Welfare Department, the general practitioners of the city should be encouraged to use their services as instructors to mothers for there are many occasions when the Health Visitor could render both the medical practitioner and the patient extremely valuable assistance. Such a plan incidentally would enable the doctor to take an interest in the work of the Child Welfare Service.

Nursery Schools.

The position of nursery schools in the scheme for the care of the pre-school child is at present receiving great attention and there are those who see in the provision of nursery schools for all the child population of the two to five years age group (1,600,000 in England & Wales in 1938) the solution of the problems of obtaining the optimum mental and physical development of children. While I realise the immense value of nursery schools and I have referred to a particular use earlier in this memorandum, I cannot at the present time subscribe to this view. I believe that nursery schools are needed in larger numbers than they at present exist but that parents should not be encouraged to send children to nursery schools as a routine procedure under the impression that a nursery school is more beneficial to the child than a good home. I would regard the nursery school as a substitute for the ideal of a good family environment and that nursery schools should be available particularly for the following groups of children :—

- (1) children whose home circumstances are unsatisfactory.
- (2) for the social education of "difficult" children and in certain cases, for the "only" child.
- (3) for the children of mothers who are compelled to follow an employment.

(b)—INFANTILE MORTALITY.

If the improvements in the type of work carried out by Health Visitors as proposed in the first section of this memorandum were

carried into effect, they would undoubtedly have an influence on the rate of infantile mortality by the dissemination of knowledge concerning the infant and the increase in the standard of care of infants. It is also to be hoped that the same influence would bring about a rise in the incidence of breast-feeding and therefore assist in diminishing the deaths from infection. These effects would, however, be more noticeable in the case of deaths after the first month than before the first month and it is in this earlier period that the fall in infantile mortality since the beginning of the century has been least.

(i)—*Neonatal Mortality.*

The greatest immediate hope for the reduction of deaths in the first month lies in a reduction of those due to prematurity and birth-injury, the latter used in its widest sense and including anything which so adversely affects the child during delivery that it dies afterwards. The problems are obviously closely related to obstetrics and cannot be solved except by close co-operation between obstetricians and paediatricians. The part to be played by the former cannot be a matter for this memorandum but I know that the Maternity Officer is very anxious to apply any measures which might help to bring about the desired reduction. The only fact I would mention concerning the ante-natal period is a social, rather than a medical, one and is in respect of the difficulty experienced in making arrangements for an expectant mother either to rest at home or to accept hospital treatment when it is available. The most usual reason is that arrangements cannot be made for the care of the remainder of the family and if the home help service were to be extended to assist such persons, after proper investigation of the case by the Lady Almoner's department, the incidence of premature birth might be materially reduced.

With, however, the highest standard of ante-natal and obstetric care, cases of premature birth and birth injury will still occur and will be problems for the paediatrician. In 1939, prematurity alone was directly responsible for one third of all neonatal deaths and indirectly was a factor in one quarter of all infant deaths occurring within the city. It is well known that the chance of survival of a premature baby increases with the birthweight of the child and the risks peculiar to the premature infant are those of temperature regulation, feeding difficulties and infection, especially respiratory infection. Also there is no doubt that the optimum conditions for survival can only be given in organised premature baby wards or

units with paediatric supervision and an adequately trained staff, together with continued supervision in follow-up clinics. This unit might conveniently be linked with the maternity unit of the hospital but it should be organised so that it is possible to admit children other than those who are born inside the hospital. In Newcastle during the three years 1939-1941 inclusive, from 8,459 live births in the Newcastle General Hospital, Gilsland War Emergency Hospital, the Gables Maternity Home or attended by the Midwifery Service, 634 were premature (birth-weight $5\frac{1}{2}$ lbs. or less), giving a prematurity rate of approximately 7.5%. 380 of the infants were 5 lbs. or less at birth (4.5% of the total). If this figure is accepted, and I believe it is an accurate estimate, it is reasonable to expect approximately 310 premature births in Newcastle during a normal year of 4,500 births, of which approximately 110 would weigh from 5 - $5\frac{1}{2}$ lbs. and only in exceptional circumstances would require special care. Of the remainder approximately 200, the majority, would benefit from special care and I estimate that a premature infant unit containing about 8 - 10 beds would be sufficient. If a wider scheme of joint or regional organisation were considered, further data concerning the number of premature infants in the area would be required. It could be confidently expected, given proper facilities, that such a unit would save many infant lives, infants who could grow into children as physically and mentally well as those of heavier birth-weight and at the same time, a material reduction in the neonatal death rate would be effected.

As stated above, children will always be born with birth-injuries. The most frequent of these and the most important are cases of intracranial haemorrhage or children who have been born in a state of asphyxia, in whom the development of neonatal pneumonia is common. In any of these cases the prognosis both for survival and for late results is so difficult that any generalisation is impossible but there can be no doubt that the usual outlook towards such cases is more pessimistic than it need be.

The problem of birth-injury is possibly less serious within maternity units where reasonable facilities are available and paediatric advice is easily obtained, but similar cases must occur on the district where it is uncommon to obtain paediatric advice for an infant. The need for a consultant service has been recognised in the case of the mother and in parallel, I would suggest that consideration should be given to the institution of a paediatric consultation service organised on similar lines and available under similar conditions. Just as in the case of complications of labour or

the puerperium hospital facilities are necessary, so would this paediatric consultant service require to be supported by similar facilities and in Newcastle these could be provided by a small number of beds, possibly 4, set aside for the purpose in a room of the premature unit as newly born infants should not be admitted either to the ordinary wards of an infants' unit or to the nursery of the premature unit.

The neonatal infections form, relative to the above cases, a small group of cases. They are probably most commonly found in hospital and will diminish as the standard of care of infants increases and the proper facilities for paediatrics are given in the maternity hospitals of the city.

(ii)—*Infant Deaths after the First Month.*

Infant deaths after the first month are largely caused by infective conditions and are much more a reflection of the social conditions of the family than the neonatal deaths. Many of the deaths fall into recognisable clinical groups but there are others which cannot be classified clinically which are nevertheless infective in origin. Of the recognisable groups the alimentary infection now occupies second place to the respiratory infection and is followed by a miscellaneous group of cases. Apart from the social and economic conditions the factors which paediatricians believe to be important in rendering a child more susceptible to such infantile infections are lack of breast-feeding and an ignorance of child hygiene in those responsible for the care of the child. In Newcastle I estimate at the present time that about 50% are breast-fed for three months and about 30% up to the sixth month. The reasons for this failure to breast-feed are complex but my experience leads me to the opinion that the causes are more commonly dependent upon the mental attitude of the mother than her physical condition and in general are :—

(1) Failure on the part of the attendants, medical and nursing, to understand the physiology and psychology of the puerperal woman.

(2) The lack of confidence possessed by the average woman in her ability to breast-feed, inculcated by an attitude which leads her to anticipate difficulties, by the doubts of relatives and the well-meaning but misguided advice of neighbours and by no means least, the advertising subtleties of the manufacturers of dried and condensed milks.

(3) A smaller group due to maternal illness or local causes in the breasts.

The question remains as to what can be done to counteract such an attitude and I would suggest :—

(1) Proper teaching concerning breast-feeding, first to medical students, midwives and nurses, who in turn would influence mothers.

(2) A change of the attitude towards breast-feeding in maternity hospitals.

(3) An advertising campaign conducted by a professional advertising manager to "sell" breast-feeding.

The improvement in the standard of infant hygiene will also only appear as the knowledge of it is made known to those in a position to influence mothers, general practitioners, Child Welfare doctors and Health Visitors. The remarks already made above are relevant here and do not require repetition.

In addition, however, to these types of infection there are two smaller groups which require special consideration.

(1) *Pertussis*. In 1939 there were 9 deaths of infants under the age of one year from pertussis in Newcastle and it is reasonable to suppose that this number would increase in an epidemic year. If the disease occurs in an infant, it is almost always transmitted by a child of school age who has caught the infection. To reduce the incidence of infection in the infant, the risk of epidemics among school children should be diminished and from the work of Bell (1940) who showed, during an extensive and thorough field investigation over a period of four years, that children protected by an alum precipitated vaccine suffered an incidence less than one third the rate in an unprotected group, there is a chance that this will soon become practically possible, and I would suggest that at the earliest possible date protection against pertussis should be made available to the children of Newcastle at the same time as they are immunised against diphtheria, or at the latest when they enter school. Administratively it would appear to be a simple task to protect all the children entering school in Newcastle, approximately 4,000 per year.

(2) *Tuberculosis*. This is a small but important group (6 deaths in 1939). In the case of this infection the infector is nearly always an adult living in the family group, usually a parent but certainly one who has been in intimate contact with the child. To prevent infection, one can only separate the child as soon as possible

after the discovery of the risk. To reduce the number of deaths from tuberculosis during the first year, two schemes are required :—

(a) Provision for the maintenance of the child (where this is made necessary by the financial circumstances of the parents) when placed with relatives or foster parents.

(b) Adequate provision for the care of infected infants, that is infants showing a positive tuberculin test with or without radiographic evidence of parenchymatous or mediastinal tuberculosis. In this connection I suggest that facilities of the type available at the Babies' Hospital, Blagdon, should be made available on a larger scale.

3 — Place of Child Welfare Service in teaching and research.

I have stated in my introduction that the third object of the Child Welfare Department should be the pursuance of studies concerning the child, its health, its development and the effect upon these of social environment. The Department should also be able to provide data at any time concerning the standard of development and nutrition of the children in its area and their approximations to or divergence from the standards accepted to be desirable. Much work is particularly required upon such problems as :—

- (1) Collection of physical data.
- (2) Studies in growth rates of full-term and premature infants.
- (3) Studies in breast-feeding and the reasons for its frequent failure.
- (4) Studies in Infantile Mortality : its causes and local variations.
- (5) The results of care of premature children.
- (6) The results of care of infants born with the signs of intracranial injury.

4 — Conclusion.

In this memorandum I have assumed that the work of the Child Welfare Service will continue to be based upon work in the Infant Welfare Centre and upon routine health visiting and suggestions have been made with that assumption in mind. This is not however to deny that alternative schemes exist but unless the whole plan of Child Welfare were changed on a national basis, I do not think their consideration to be immediately practical.

Also where I have made suggestions, I have not attempted to give estimates of the probable costs but I am sure that none of the measures would be expensive when compared with their usefulness. If any estimate concerning any particular suggestion is required, it can be supplied.

It is my opinion that Newcastle should not have an infantile mortality rate of more than 40 per 1,000 live births, that its Child Welfare organisation could be a much more influential service than it is at present, and that the most important measures immediately required are :—

(1) A serious attempt to reduce the neonatal mortality rate by the provision of facilities for the care of premature infants and infants suffering from birth trauma.

(2) Revision of the system of Health Visiting by the provision of sufficient adequately trained staff to carry out regular routine visits to all children under five years.

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