THE SYSTEM

- of -

MEDICAL INSPECTION OF SCHOOL CHILDREN

- in -

CUMBERLAND

WITH SPECIAL REFERENCE

to the

DIAGNOSIS

- of -

INCIPIENT PHthisIS

By

KENNETH FRASER, M.B., Ch.B.
MEDICAL INSPECTION OF SCHOOL CHILDREN

IN CUMBERLAND.

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GENERAL OBJECTS.

The aims of Medical Inspection of school children in any area are varied; obviously chief among them are:

(1) The discovery at as early an age as possible of defects in the health of the child.

(2) The adoption of measures which will ensure so far as possible that such defects are remedied without unnecessary delay.

Objects of perhaps less, but still of great importance, are:

(3) Inspection of school premises - to report on sanitary defects requiring attention.

(4) Co-operation with the Public Health Authorities through the Medical Officer of Health, for the prevention of the spread of infectious disease, discovery of insanitary houses, &c.
M E D I C A L  I N S P E C T I O N  O F  S C H O O L  C H I L D R E N
I N  C U M B E R L A N D .

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(4) Co-operation with the Public Health Authorities through the Medical Officer of Health, for the prevention of the spread of infectious disease, discovery of insanitary houses, &c.
(5) Advising head-teachers as to the early diagnosis of contagious conditions, e.g. ring-worm, and on such obvious points as the health of individual children, and co-operating with them to stamp out neglect and malingering where these exist.

DIFFICULTIES.

It is obvious that the work of medical inspection presents much more difficulty in country districts than in towns. Communication is more difficult in organising the work, and to the difficulties of the work, per se, are added difficulties of transit. For many reasons the work in Cumberland is about as difficult to organise as it could well be. You have the county town - the obvious and necessary headquarters, placed so eccentrically in the county as to approximate to one of its borders, so that a journey of 75 miles can be undertaken from it within the limits of the county. You have outlying "tags" of the county to visit, which geographically are not part of the county at all, and to reach which you have to pass into other counties.
You have a very large area, much of which is sparsely populated, and with, as a natural sequence, numbers of very small rural schools difficult of access. You have this large area supplied by a remarkable number of independent railways, large and small which in several instances strive to demonstrate their independance by running their trains to the various junctions only in time to see the last carriage of the train one was supposed to catch disappear over the horizon.

Transit then presents one of the chief difficulties in the organisation. Most of the travelling is done by train or motor, chiefly the latter, which in the case of many schools is not only the most efficient and economical, but the only possible method of working the school. Other schools are reached by hire of a trap, by cycling or walking, or by combining one or other of these with a train journey. A considerable quantity of "gear" has to be carried about, which is detailed below, and which weighs round about four stone; when motoring this is, of course, easily dealt with, and even train journeys, if the school is near the railway station, are comparatively simple to negotiate, but when cycling say 5 - 10 miles, or visiting a school say two miles distant from the nearest station, which distance
one walks, or when going across country from one school to another a mile or two away, the problem of the porterage of one's impedimenta becomes acute. Latterly one of the inspectors bought a motor-cycle, and so solved the problem of the 5 - 10 miles radius schools to a large extent, but previously the two inspectors had very strong carriers fixed to their push-cycles, and carried the entire baggage with them. When one remembers, however, that most of the cycling is done in the hilly districts of West Cumberland, the wisdom of undertaking this extra strain is very questionable. In districts where a mile or two has to be walked from school to school, or from country stations, all and sundry are pressed into the service of porterage; frequently two or three boys are sent from the schools to carry the gear, taking turns, but one may have to beg the services of railway porters, or rely on the happy chance of a casual loafer, "oldest inhabitant," &c., to solve the problem of getting one's baggage to the school with the least possible loss of time.

Obviously there is a limit beyond which it is more economical to stay away than to travel from
Carlisle each day. For motoring, the practical limit has been found to be 40 miles roughly, and this involves, of course, an early start. While on this point, one may remark that the practice has been, when motoring, to leave Carlisle at 8 - 8-10 a.m. in summer, and a few minutes later in winter (because shorter distances are travelled), in order to get to work as soon after nine a.m. as possible. For railway travelling it is waste of time to travel daily west of Maryport. Beyond these limits the custom is to make headquarters at suitable points, and, of course, some towns within these limits are large enough to require a residential visit.

The individual arrangements are the outcome of experiments and experience, and taking into account cost of travelling, hotel expenses, value of time saved or lost, as the case may be, represent the best combination of economy and efficiency that can be arrived at.

**GENERAL SCHEME.**

It is obvious that the work of necessity falls into a more or less inevitable time-table, e.g. the long distance motoring and cycling, and the outlying
country work generally are done during the summer months. So far as possible the districts are visited in the same order each year; unavoidable causes as epidemics, changes in the staff, &c., interfere with this regularity.

The intention is to visit and, if necessary, (following certain rules to be laid down later), revisit every school during each year. With the present staff this is impossible, and the most that can be done is to visit and revisit the larger schools yearly, and divide the small schools between two years. It is usual when a district is commenced to finish the work in the same before passing on to another district. The schools are grouped for this work in sanitary and not in attendance districts; by this means the statistics come into line with the general health statistics of the Medical Officer of Health, and are correspondingly more valuable.

There are two Assistant School Medical Officers in the county, and the custom has always been for them to visit schools together, and to work together generally. The advantages of this plan over that of giving separate districts to each are most marked.
There is great economy in travelling; the same motor or trap can carry both men and the nurse: again, one nurse only is necessary for the actual school work - leaving the other free for visiting and other work. It is far easier to arrange the work to take full advantage of the school hours for two men working together. Difficult cases get the benefit of two opinions, and the case is talked over carefully before a diagnosis is arrived at; again, the two may have specialised along different lines, e.g., one may have special training in eye work, and takes charge of difficult eye cases, the other may have specialised in fevers, and may recognise a suspicious throat as probably diphtheritic, which his colleague may not be sure of, and so on. It would be difficult to find a better illustration of the adage that "two heads are better than one," than that afforded by medical inspection. Lastly, but very important, the school is completed in half the time, and there is consequently less disturbance in the general work, especially important when one remembers that the work of the inspection necessitates the vacating of a class-room, the children from which are added to the, in many cases, already over-filled other class-rooms of the school.
To the Parents or Guardians of

SAMPLE ENVELOPE.
(The Address on the flap is shown reversed.)
OUTFIT.

The outfit carried is more or less obvious, it includes:-

"Jaraso" weighing machine in specially constructed box with handle, by far the most convenient weighing outfit one has seen. To economise space, the box is arranged to hold various of the articles mentioned below.

Folding 6 feet measuring rod, with detachable horizontal piece.

Tape-measure.

Sterilised throat swabs in cases ready for posting.

Numerous Forms, detailed later, to meet, so far as possible, every contingency, and printed as fully as possible; some forty of such forms are in use, and however excessive this may seem on paper, the saving of time is most important and indisputable.


Envelopes, printed as shown; note the address on the flap to provide for non-delivery.
Several different sets of Snellen's test type.
Clinical Thermometer.
Tuning-fork.
Sterilised wooden spatulae: these are prepared
by the nurse, who carries the daily supply,
and is responsible for it. Ordinary
gardeners' marking stakes (tallies), split
lengthwise into two to save room are used.

The question of the use of ear and nose specula is
under consideration; highly desirable as these frequently
are, the questions of (a) sterilisation, (b) illumination,
are difficult of solution.

When staying away, gusseted envelopes are carried,
so that the report cards, &c., may be despatched to the
office without delay on the close of the inspection each
day.

NOTIFICATION.

It is always necessary in medical inspection work
to think and plan well ahead, and it is advisable to take
the preliminary steps three weeks at least before the
actual inspection will take place. The preliminary steps
consist in sending, after a district has been decided on
for visitation, Forms I., II. and III. to the head teachers
Dear Sir (or Madam),

I beg to inform you that the above-named School will be visited for the purpose of carrying out the Medical Inspection of School Children under Section 13 of the Education (Administrative Provisions) Act, 1907, during the month of ........................................... If the School will be closed any time during that month I shall be glad if you will give me the dates.

A later communication will be sent to you, fixing the date and time of the Inspection.

May I ask you to have the accompanying Table filled in and returned to me at your earliest convenience.

Yours faithfully,

F. H. MORISON,
School Medical Officer.

To:—
The Head Teacher.

CUMBERLAND COUNTY COUNCIL.

EDUCATIONAL (MEDICAL) DEPARTMENT.

........................................... School.

For the purpose of the Medical Inspection it is essential that the information requested be supplied by return of post to:—

DR. MORISON,
School Medical Officer,
48 Warwick Road,
CARLISLE.

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<th>Boys</th>
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1. No. of infants who have been admitted to School since the last Medical Inspection.
N.B.—Children who should have been examined at the last Inspection, but were absent should be included. Children who have been examined at any other school in the county should not be included.

2. No. of children over 12 years of age who have not previously been examined as “leavers.”

3. No. of children whom, owing to any known or suspected defect it is deemed advisable to have examined by the School Medical Officer. Children already included in groups 1 and 2 are not to be counted in this group.

4. No. of children on the roll

In the space below please fill in the dates on which the school will be closed during the month ...... of ......................

Please state day and hour of special classes, such as cookery, wood work, etc., if any.

N.B.—It is requested that the Head Teacher of each department will fill in the figures relating to his (or her) department.
and correspondents respectively of the schools in the district. It will be noted in passing that all the forms are marked No. so and so M. I. These letters standing, of course, for Medical Inspection, and being for the purpose of distinguishing these forms from the corresponding numbers used in the general public health forms, a necessary precaution when the forms of both departments are stored in and issued from the same office.

Forms 1. and 111. may pass without comment - they are sufficiently obvious. Form 11. is for the purpose of obtaining information from the head teacher as to the numbers of children who are to be examined at the forthcoming visit. It is, of course, necessary to have these numbers in order to calculate how much time will have to be given to the visit at each school, and to arrange one's programme accordingly. It is also necessary to know how these numbers are obtained, i.e., how many are "entrants" i.e., those to be examined on entering the school, and how many are "leavers," i.e., those to be examined on attaining the age of twelve years; this is because more time has to be allotted per head of "leavers" than of "entrants," because "leavers" have their eyesight tested, which "entrants" do not.
It is also well to know the number of "special" cases whom the teacher desires to have examined. These are children too old for the "entrant," and too young for the "leaver" groups i.e., between their 8th and 12th birthdays, who have, or are suspected of having, some defect, say of eyes, ears, &c. These take relatively much less time to examine, because frequently only one point has to be dealt with.

The stating of the total numbers on the roll is desirable, because a certain amount of time has to be allowed for the "march past" of these, and this varies, of course, with the numbers, and again, teachers frequently return this form wrongly filled in through misunderstandings, and with the total number on the roll known it is possible approximately to check the "entrant" and "leaver" figures without knowing the facts at all, in this way:- "Leavers" practically means those who have reached their twelfth birthday since last inspection, i.e., one year's children roughly, and similarly, "entrants" practically means one year's admissions.

Now the child's school life is about nine years, 5 - 14, and, therefore, the Routine Examinations (entrants and leavers), so called to distinguish them from special examinations, should amount to about two-ninths of the total number on the roll.
Children are now examined with us as "leavers" upon reaching the age of 12, instead of 13 as formerly. This new arrangement has been found to have numerous advantages which may be tabulated:—

(1) Fewer children are missed than before, because (a) if say 15 months elapsed between two consecutive examinations of a school, a child under the old system might be 12 years 10 months at the first examination, and would have left school before the second examination took place; by examining all children over 12, this risk is reduced to a minimum. Similarly (b) children ages 13 - 14, if absent through illness, bad weather, &c., were missed before, but now, if so absent where age 12 - 13, have another chance of being examined when age 13 - 14.

(2) Children found defective as leavers under the old system were rarely seen again, and little or nothing was known as to treatment obtained, and there is little room for doubt that the fact that the child would have left school before "the doctors" came
round again, encouraged in many cases a policy of "laissez-faire" on the part of the parents. Now it is not so. Children found defective as "leavers" at 12 years of age are seen at least once, and frequently twice or thrice again before leaving school, and as will be subsequently explained, the opportunity is taken, when judged to be necessary, of discussing the child's condition with the parent personally.

(3) So far as female children are concerned, the undressing in front of say a teacher and one or two companions, sufficiently to allow of proper examination of the chest is liable in a percentage of cases in children of highly-strung and sensitive temperament to be something of an ordeal. This is for obvious reasons not so marked if the children are examined a year younger, and although the feelings of the children are considered in every way, yet this point is of considerable importance. This raises, of course, the vexed question of the desirability of having lady
inspectors to examine the girls, but I am satisfied that the sex of the inspector has nothing to do with the diffidence referred to above, but that what these children object to is undressing before a number of their companions and before their teachers, and that comparisons of the quality and cleanliness of their under-clothing, with that of other perhaps more fortunate children, is one of the chief causes of their nervousness. This is not very wonderful when one remembers that one frequently sees under-garments cut out of old flour-bags, &c., which may be perfectly clean and comfortable, but which the wearer may not like to be commented on in public.

In any case, whatever be the cause of the diffidence referred to, which undoubtedly is sometimes seen, and to which questions of development may contribute to some extent, the older the child the more apparent it is likely to be.

Children are examined as "entrants" in accordance with the requirements of the Board of Education on their admission to school, irrespective of age. Thus
I have examined a child of 2½ years, and one has frequently to examine children of three years of age. This I think is a mistake: children who are so very young are more or less "raw" to school life, and are not so thoroughly under discipline, and are much more likely to dissolve into tears during or at the prospect of the ordeal of examination than older children. The example of a comrade in tears is highly infective, and frequently the confidence of a whole batch of infants may be lost through the attempt to examine one of these very embryonic scholars, whose anxiety is quite understandable when one remembers that the older children have been telling them for days beforehand that "the doctors" will "put them in a bag," or pull out their teeth and otherwise mutilate them.

In any case children of three years of age are very frequently unable to concentrate their attention so as to breathe according to one's requirements, to cough to order, to say "ninety-nine," and generally to be profitable subjects for examination. No doubt a superficial examination for tonsils, squints, and other obvious defects may be desirable, but for the examination of the chest I am convinced from experience that it would
be better to make the fourth, or preferably the fifth birthday the starting point.

It will be noted finally in regard to the preliminaries of notification that spaces are provided for the head teacher to fill in dates of periods of holidays, or of single days on which the school will be closed. It is obvious that the return of this information, before any programme is finally decided upon, prevents much possible confusion of dates and unnecessary correspondence. Latterly, too, a space has been added for the filling in of days and hours of special classes each week, and as the question of grants in connection with these is important, the programme is arranged as far as possible to avoid clashing between the inspection and such special classes.

Form 11. having been returned, a definite programme is arranged, according to the information contained in it, for a group of schools, and here again it may be emphasised that for rural schools especially, with small numbers, and lying some distance apart, the work can be arranged with much less waste of time for two men working together. The programme having been
CUMBERLAND COUNTY COUNCIL.

EDUCATION (MEDICAL) DEPARTMENT,
48 WARWICK ROAD,
CARLISLE.

DEAR SIR (OR MADAM),
...............................SCHOOL.
...............................DEPARTMENT.

I beg to inform you that the above-named School will be visited on...
............................the..........day of.
191, about o'clock, for the purpose of carrying out the Medical
Inspection of School children under Section 13 of the Education (Administrative

The Inspection of scholars will be carried out in the following order:

(1) No. of Infants admitted since last Medical Inspection.
(2) Children of 12 years or over.
(3) Any special cases.

You are requested to fill in the required information on the enclosed medical
inspection schedules for the use of the Medical Officers on the day of inspection.
For your guidance I enclose a specimen schedule with explanatory notes.

Enclosed are the requisite number of Forms 5, M.I., which are to be filled
up by the parents of the children to be examined.

Yours faithfully,

F. H. MORISON,
School Medical Officer.

To:——
The Head Teacher.

ENCLOSURES.
arranged, the date and hour of the forthcoming visit are notified to the head teacher and correspondent of each school respectively on Forms IV. and VII., II.l. Copies of these programmes are also sent to His Majesty's Inspectors. It will be noticed that a detachable fly-leaf, acknowledging receipt of this final notification, is attached to Form VII. As will be seen, the order in which the children will be examined is stated in the notification; the object being to allow the head teacher to be able to give parents a rough idea of the time at which their children are likely to be examined. In practice the children of any parents who turn up are examined as soon as possible thereafter, consistent with such obvious points as that older boys and girls must not be examined at the same time.

To the head teacher, along with Form IV., Forms V., VI. and XXlI. are sent. Form VI contains detailed instructions to the head teacher as to the filling up of certain points on the inspection card for each child. Form V., of which the necessary number is sent to each head teacher, is for the purpose of notifying the parents or guardians of each child of the inspection, and for obtaining from them a note of any illness the child
CU M BERLA N D  COUNTY COUNCIL.

EDUCATION (MEDICAL) DEPARTMENT.

EDUCATION (ADMINISTRATIVE PROVISIONS) ACT, 1907.

Medical Inspection of ............................................ School.

Name of Child ...........................................................

DEAR SIR (OR MADAM),

The School Medical Officer will attend at the above School on ..............
at ..................... m., for the purpose of Medically Inspecting the children.

Will you be good enough to see that your child is present on that date? You may attend at the examination yourself if you care to do so.

Will you also be good enough to fill in this form, answering "Yes" or "No" to each question, and return it as soon as possible to the Head Teacher?

Has your child had:

- Chicken Pox
- Mumps
- Growing Pains
- Scarlet Fever
- Rheumatism
- Rupture

Any other serious illness ............................................

Kindly state occupation of parent or guardian .............................................

Yours faithfully,

F. H. MORISON,
School Medical Officer.

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DEAR SIR (OR MADAM),

You are requested to read carefully the following notes on the method of filling in the Medical Inspection Record Cards.

Attached to this form is a specimen card duly filled in, and the notes on this form are lettered to correspond with the letters on the specimen card.

(a) There are four lines numbered I., II., III., IV., for the address and school corresponding to the numbered columns I., II., III., IV., on the other side.

Lines and column I. are reserved for infants or "entrants," i.e., children who have not previously been medically examined.

Lines and column IV. are reserved for children over 12 years, i.e., "leavers."

(b) The full postal address is required.

(c) The name of the department must be added if the school is composed of separate departments.

(d) The column headed "Before Admission" is to be used for "entrants" only. The column headed "Between 3rd and 4th Inspection" is to be used for "leavers" only.

(e) The information regarding the previous illnesses will be obtained from Form 5 M.L., which the parent has returned to you.

If the child has had an illness place a + sign in the corresponding space. If a child has not had the illness mentioned place a — sign in the space.

(f) In this space write the name of the illness.

(g) Any interesting fact concerning the family history should be briefly stated in this space, i.e., a history of consumption, insanity, etc.

(h) The standard should be filled in in roman numerals, e.g., VI. In the case of an infant simply put "Infants."

(i) Please state the age in years and months, i.e., 12½.

Yours faithfully,

F. H. MORISON,
School Medical Officer.

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DEAR SIR,

During the Medical examination of school children, it is essential that absolute quiet should prevail in the room set aside for that purpose.

I would be glad, therefore, if you would choose the room which, under ordinary circumstances, is the quietest, and as far as possible, postpone class singing and marching until the Inspection is completed.

If you would also instruct the children in the playground to make as little noise, and to keep as far away from the room in which the inspection is carried out, as possible, you would materially assist us, and greatly oblige.

Yours faithfully,

F. H. MORISON,
School Medical Officer.
may have had. An invitation is also extended to the parents or guardians to be present if they care to do so. It may here be remarked that a very small, though an increasing number of parents, attend the inspections. So far as this first inspection is concerned, the presence or absence of parents is not very important, except in so far as it demonstrates an interest in the work which is very welcome. Regard the examination of a batch of children as practically the selection of a short list of those found to be defective and it is obvious that if the parents of 20 children up for ordinary examination turn up at the inspection, in the case of, say, 15, there is nothing to tell them except that their children are perfectly healthy, and human nature is such that a good deal of time has to be expended in telling them so. Further in many cases it is obvious that the motive underlying their attendance is not interest but curiosity. On the other hand, in cases where children have been found defective at a previous examination, or where they are suspected by parents or teachers of being defective in some point, the presence of parents at the examination is most desirable. The system of paying second visits, wherever possible, to all schools to re-examine and report on the progress of defective children is being
gradually introduced into the county, as will be explained in detail later, and to these re-visits a special note of invitation is sent to the parents of all children to be re-examined; this branch of the work is more or less in the experimental stage, but has already met with great success, and a very large proportion of the parents invited respond to these invitations. For the success of these re-examinations the presence of parents and guardians is not only desirable but essential.

Form XXII. is obvious, and is sent to the head teacher at every inspection as a reminder that medical inspection is work carried on, at the best, under difficulties, and that these difficulties are enormously increased unless every effort is used by those in charge of the schools to prevent unnecessary noise.

Most head teachers are very good at helping in this matter; some, on the other hand, do little or nothing, and many who are really anxious to help do not realise the need for absolute quiet. Contrast for a moment the relative quiet of the hospital ward, or the consulting room, with that of the average school with
With the sending out of Forms IV., V., VI., VII. and XXII., and a supply of record cards, notification is completed.

**RECORD CARDS AND METHOD OF USING.**

The medical school record of each child is kept on a separate card, and, as has been noted, a sufficient supply of these, (both Routine and Special), is sent to the head teacher, along with the notification forms. The idea is that on each card is a complete record of the child's condition (as to health, height and weight, cleanliness, mental development, &c.), at each routine examination during its school life, together with any facts relating to special examinations, and to treatment and general progress of any defects found. The cards now used, specimens of which are shown, have been much altered from these originally used, and appear to be as concise and compact as possible. They are of thin cardboard, \( \frac{9}{4} \)" by \( \frac{5}{2} \)". They are, of course, of different colours - the colour chosen is immaterial, but, in point of fact, the routine examination record cards are white (boys) and pink (girls); and the special examination cards are
"Medical Officer's Observations"; it is obvious that the fuller the notes under this heading can be the better. The name and address are, of course, fictitious in the specimen shown.

Great importance is attached to the filling in by the head teacher of any important points he may know as to the medical family history of the child. Some teachers will tell one of the facts, but do not appear to care to put them down in black and white. It will be noted that abbreviations are freely used on the specimen record card shown. It was found that much time was wasted in writing in full medical and other terms, many of them constantly recurring, on these record cards in the schools, and in transferring of these by the clerks in the office to the typewritten list of defects found in each school — the so-called "Defect List" to which reference will be made later. A complete system of abbreviations was drawn up for all the commoner terms used, medical or otherwise, and while care is taken that these are so distinctive that no confusion is likely to arise, yet by their use an enormous amount of time and labour has been saved. A list of these abbreviations is appended:-
LIST OF MEDICAL ABBREVIATIONS FOR DEFECT LIST.

1 T. ... ... Slightly enlarged tonsils.
2 T. ... ... Markedly " "
1 A. ... ... Suspected adenoids.
2 A. ... ... Definite "
1 Gl. ... ... Slightly enlarged glands.
2 Gl. ... ... Considerably " "
3 Gl. ... ... Very much " "
Str. ... ... Strabismus.
Bl. S. ... ... Squamous blepharitis.
Bl. U. ... ... Ulcerous "
V.R. (fraction). ... Defective vision Right Eye-
(fraction 6/12, &c.).
V.L. (fraction). ... Defective vision Left Eye-
(fraction 6/12, &c.).
Otor. ... ... Otorrhea.
Deaf. ... ... Deafness.
Def. Sp. ... ... Defective speech.
1 M.D. ... ... Slight mental dulness.
2 M.D. ... ... Marked " "
3 M.D. ... ... Mentally defective.
A. Sy.  ...  ...  ...  Aortic systolic murmur.
M. Sy.  ...  ...  ...  Mitral " "
P. Sy.  ...  ...  ...  Pulmonary " "
T. Sy.  ...  ...  ...  Tricuspid " "
A. Di.  ...  ...  ...  Aortic diastolic "
M. Di.  ...  ...  ...  Mitral " "
P. Di.  ...  ...  ...  Pulmonary " "
T. Di.  ...  ...  ...  Tricuspid " "
M. Pre.  ...  ...  ...  Mitral presystolic "
B. D. D.  ...  ...  ...  Bruit de diable.
Haem. Mur.  ...  ...  Haemic murmurs.
Card. Arr.  ...  ...  Cardiac arrhythmia.
Anm.  ...  ...  ...  Anaemia.
S. B.  ...  ...  ...  Subacute bronchitis.
Wk. Ch.  ...  ...  ...  Weak chest.
Ptb.  ...  ...  ...  Pretubercular.
Phth.  ...  ...  ...  Phthisis.
I. C.  ...  ...  ...  Impetigo Contagiosa.
Ecz. Aur.  ...  ...  Eczema auris.
Seb.  ...  ...  ...  Seborrhoea.

Tuberculosis:-
    A.  ...  ...  ...  Active.) For statistical
    L.  ...  ...  ...  Latent.) purposes.
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<th>Deformities:</th>
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<td>F. &amp; F.</td>
<td>...</td>
</tr>
<tr>
<td>S.</td>
<td>...</td>
</tr>
<tr>
<td>N. D. L.</td>
<td>...</td>
</tr>
<tr>
<td>N. I.</td>
<td>...</td>
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<tr>
<td>N. N.</td>
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<tr>
<td>N.</td>
<td>...</td>
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<tr>
<td>N. P. O.</td>
<td>...</td>
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<tr>
<td>I. S. Q.</td>
<td>...</td>
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<tr>
<td>Imp.</td>
<td>...</td>
</tr>
<tr>
<td>D. L.</td>
<td>...</td>
</tr>
<tr>
<td>Abs.</td>
<td>...</td>
</tr>
<tr>
<td>Name</td>
<td>Date of Birth</td>
</tr>
<tr>
<td>------</td>
<td>--------------</td>
</tr>
<tr>
<td>John</td>
<td>11/3/18</td>
</tr>
<tr>
<td>Jane</td>
<td>3/6/18</td>
</tr>
<tr>
<td>Mark</td>
<td>6/2/18</td>
</tr>
</tbody>
</table>

*TO BE FILLED IN BY THE HEAD TEACHER*
<table>
<thead>
<tr>
<th></th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
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<tr>
<td><strong>CONFIDENTIAL</strong></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Date of Inspection</td>
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<td></td>
<td>11:3:13</td>
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</tr>
<tr>
<td>Standard</td>
<td></td>
<td></td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td>12 1/2</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Height</td>
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<td>Weight</td>
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<td>68 1/2</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Vaccination</td>
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<td>6</td>
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<tr>
<td>Clothing and Footgear</td>
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<td>Nutrition</td>
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<tr>
<td>Teeth</td>
<td></td>
<td>3</td>
<td>6</td>
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</tr>
<tr>
<td>Nose and Throat</td>
<td></td>
<td></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Tonsils</td>
<td></td>
<td></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Adenoids</td>
<td></td>
<td></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Glands</td>
<td></td>
<td></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>External Eye Diseases</td>
<td></td>
<td></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Strabismus</td>
<td></td>
<td></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Blepharitis</td>
<td></td>
<td></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Other Diseases</td>
<td></td>
<td></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Vision</td>
<td></td>
<td></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>R. E</td>
<td></td>
<td>46</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>L. E</td>
<td></td>
<td>46</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Ear Disease</td>
<td></td>
<td></td>
<td>6</td>
<td></td>
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<tr>
<td>Hearing</td>
<td></td>
<td></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Speech</td>
<td></td>
<td></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Mental Condition</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Heart and Circulation</td>
<td></td>
<td></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Organic</td>
<td></td>
<td></td>
<td>6</td>
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</tr>
<tr>
<td>Functional</td>
<td></td>
<td></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Lungs</td>
<td></td>
<td></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Phthisis</td>
<td></td>
<td></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Tuberculosis (except Phthisis)</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rickets</td>
<td></td>
<td></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Deformities</td>
<td></td>
<td></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Ringworm</td>
<td></td>
<td></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Impetigo Contagiosa</td>
<td></td>
<td></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Other Infectious or Contagious Diseases</td>
<td></td>
<td></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Other Diseases or Defects</td>
<td></td>
<td></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Asst. Medical Officer’s Initials</td>
<td></td>
<td></td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>
The interpretation of the child's record card, which has been shown as a sample in the light of these abbreviations, is as follows: At the routine visit on 11th March, 1913, the child, John Blank, was found to be pretubercular (Pt. b.) and anaemic (Anm.); these facts were notified (N.) to the parents. The question of excluding the child from school for a period for the benefit of its health was considered and left open (Exclusion?) The condition of the child was considered so unsatisfactory that the case was starred (*), which means that at the re-visit the case would receive special attention. At the same visit the eyesight (V.) was found to be defective - full vision (6/6) in the right eye, and only perception of light from darkness (P.L.) in the left; it was considered that no treatment could remedy this defect, which was, therefore, not notified (N.N.). These facts would be recorded for reference on the defect list. The child was also found to be suffering from very marked spinal curvature (lordosis), but as this condition was permanent, and not amenable to treatment, and not likely to improve in any way, it was considered useless to record this defect on the defect list (N.D.L.).
The case was seen again at the re-visit on 3rd June, 1913. A parent was present (P.). The lung condition had progressed, and early phthisis (Incip. Phth.) was diagnosed and notified to the local M. O. H. (N.). Certain other facts were noted to confirm the diagnosis, and the parent gave further details of consumption in the family. The child was excluded from school for one year. It will be noted that previous to admission the child had had measles, scarlet fever, growing-pains and pneumonia, and that the father had died of phthisis.

Turning to the backs of these record cards, it will be noted that the private nature of the contents is emphasised of a large Confidential in red ink at the head of the card. The first three facts, i.e., date, standard, and age are, as indicated, filled in by the head teacher previous to the inspection. The second three, viz., height, weight, and vaccination marks are filled in by the nurse before the child comes for the medical examination proper; the other data are filled in by the medical inspector. To indicate the state of nutrition, clothing, and cleanliness, numbers are used for brevity and speed, the system is as follows:-
CLOTHING AND FOOTGEAR:

I. Very good clothing, &c.
II. Average.
III. Rather below average. Frayed, a little dirty, slightly torn.
IV. Considerably torn, markedly dirty, or insufficient.
V. Extremely tattered, dirty, &c.
F. & F. Foul and filthy clothing - for which condition the child is excluded from school.

NUTRITION:

I. Extremely well nourished.
II. Average.
III. Rather below average; pale, thin, &c.
IV & V. Represent very poor nutrition; V. indicating emaciation, &c., and being seldom found.

CLEANLINESS, HEAD OR BODY:

I. Perfectly Clean.
II. Dirt removable by soap and water.
III. Nits on the head, or vermin bites on the body.
IV. A mass of nits on the head, or extremely badly bitten body.
V. Actual vermin on head or body.

Children are excluded for IV. heads, and V. heads bodies.
TONSILS AND ADENOIDs are classified as No. 1. and No. 11. 1. tonsils, means tonsils somewhat enlarged or congested, an indication for painting; 11. tonsils, indicates that removal is desirable; similarly with 11. adenoids.

GLANDS are 1. slightly enlarged; 11. definitely enlarged; 111. very large - probably tubercular.

From Strabismus down to Other diseases or defects, with the exceptions and additions noted below, any defect found is marked in the respective space with a +, and the comment is made on the front of the card, under "Medical Officer's Observations"; thus in the case of the child whose card is shown, the anaemia is indicated by a + opposite Functional diseases of heart and circulation. The pretubercular condition is indicated by a + opposite the pretubercular section of lung diseases, and the spinal curvature by a + opposite deformities. In addition to the +, certain other marks are used in some cases, e.g., under ear disease, if deafness be present as well, which is definitely traceable to the ear disease, (meaning otorrhoea), it is indicated by a small d. in addition - thus + d.; this
serves to distinguish this type of deafness from that due to wax, sclerosis, &c. Similarly, under Deformities, the primary cause of the deformity is indicated by, e.g., rickets (r), infantile paralysis (i.p.), &c.; thus the lordosis in the card shown has been diagnosed, as due primarily to rickets, indicated by +r.

Two other points may be mentioned: (1) mental condition if abnormal is indicated by M.D. 1. mentally slow, M.D. 2. mentally backward, M.D. 3. mentally defective. (2) Defects of vision are indicated in the usual way by fractions (6/6 being full vision), and defects of 6/12 or over in either eye are notified to the parents. Less than 6/12 is merely recorded for further observation and not notified, because it is considered that no amount of care can eliminate fully the possibility of full vision (6/6) being occasionally recorded as 6/9, because of (a) variations in illumination due to dark days, &c., and (b) the personal equation, i.e. nervousness on the part of the child.

From the above description it will be seen that the maximum of information is recorded with the
CUMBERLAND COUNTY COUNCIL.

EDUCATION (MEDICAL) DEPARTMENT.

48 Warwick Road,
Carlisle,

DEAR SIR (or MADAM),

It has been decided to keep the records of the medical inspection in the schools at which the children are attending.

For the purpose of storing these cards the accompanying case containing a set of alphabetical guide cards is sent to you.

You are requested to arrange the record cards, as soon as you receive them from the School Medical Officer, in alphabetical order, and to store them in the filing case, which must be kept under lock and key.

When a child leaves your school, you are requested to hand the record card relating to that child to the School Attendance Officer, who will transfer the card to the Officer of the district to which the child has gone.

It must be remembered that the facts stated on these record cards are strictly confidential, and on no account must any information concerning the medical condition of a child be divulged.

Yours faithfully,

F. H. MORISON,
School Medical Officer.

To:—
The Head Teacher.
minimum waste of time and labour, either in the school or to those who transfer the information in the office to the "defect list."

These record cards, as has been indicated, are sent in sufficient numbers to the school with the final notification forms. They are kept in strong cardboard boxes labelled Private, and are filed alphabetically on the card index system; thus even in the largest school any card wanted can be found in a few seconds. When schools are in departments, the head teacher of each department has a box for the cards for that department.

A circular was issued to each head teacher with the first supply of these record cards last year; a copy is shown and it will be noted that when a child leaves the school the head teacher hands the card to the attendance officer, who transfers it to the proper quarter.

After the routine examination of any school or department is finished, the record cards which have been used are taken by the inspectors, or posted, as
the case may be, back to the office, where the defect
lists and notices are made up and sent out, and the
statistical records taken from the cards on to special
statistical sheets; the cards are then returned to the
charge of the head teacher, and remain at the school,
so that, when the School Medical Officer or any of his
Assistants happens to call at any school by chance or
design, and the condition of any child comes up for
discussion at any time, the school medical record of
the child can be turned up at a moments notice.

WEIGHT CHARTS AND WEIGHING.

While on the subject of the record cards,
reference may be made to the weight charts, which are
freely used in the work. All phthisical or
pretubercular children in the county, however isolated,
are weighed once a month by the school nurses, or by
the local district nurses. For a county like
Cumberland, with the difficulties of transit, note already, so marked, this is a remarkable achievement.
Unfortunately, for reasons to follow, much of this
energy is wasted.
### Weight Chart

**School**  

**Name**  

**Date of Birth**  

**Address**  

**Diagnosis**  

**Remarks**  

<table>
<thead>
<tr>
<th>Age</th>
<th>BOYS Average Weight</th>
<th>BOYS Annual Increment</th>
<th>GIRLS Average Weight</th>
<th>GIRLS Annual Increment</th>
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</thead>
<tbody>
<tr>
<td>3-4</td>
<td>32.8</td>
<td></td>
<td>32.0</td>
<td></td>
</tr>
<tr>
<td>4-5</td>
<td>36.1</td>
<td>3.3</td>
<td>35.1</td>
<td>3.1</td>
</tr>
<tr>
<td>5-6</td>
<td>39.0</td>
<td>2.9</td>
<td>37.9</td>
<td>2.8</td>
</tr>
<tr>
<td>6-7</td>
<td>42.8</td>
<td>3.8</td>
<td>41.2</td>
<td>3.3</td>
</tr>
<tr>
<td>7-8</td>
<td>47.4</td>
<td>4.6</td>
<td>45.4</td>
<td>4.2</td>
</tr>
<tr>
<td>8-9</td>
<td>51.4</td>
<td>4.0</td>
<td>49.0</td>
<td>3.6</td>
</tr>
<tr>
<td>9-10</td>
<td>57.0</td>
<td>5.6</td>
<td>55.3</td>
<td>6.3</td>
</tr>
<tr>
<td>10-11</td>
<td>61.2</td>
<td>4.2</td>
<td>59.4</td>
<td>4.1</td>
</tr>
<tr>
<td>11-12</td>
<td>67.9</td>
<td>6.7</td>
<td>66.8</td>
<td>7.4</td>
</tr>
<tr>
<td>12-13</td>
<td>73.4</td>
<td>5.5</td>
<td>74.5</td>
<td>7.7</td>
</tr>
<tr>
<td>13-14</td>
<td>77.8</td>
<td>4.4</td>
<td>81.8</td>
<td>7.3</td>
</tr>
<tr>
<td>14-15</td>
<td>84.4</td>
<td>6.6</td>
<td>88.4</td>
<td>6.6</td>
</tr>
</tbody>
</table>
In addition to phthisical and pretubercular children, any children whose nutrition is unsatisfactory are, if thought to be desirable, placed on the weighing list.

The weight charts, samples of which are shown, are of two colours, white for boys, pink for girls. On the front of each is space for name, address, school, &c., with larger space for diagnosis and remarks. At the foot is a table indicating the average weight and annual increase for each year of school life, boys and girls being separate, of course. Such a table is very useful for indicating to parents of delicate and ill-nourished children the standard to which they must endeavour to raise their children, and the annual increase that is desirable. The semi-competitive idea involved, which some authorities emphasise even more, undoubtedly has a stimulating effect if intelligently used.

The back of the chart is blank, except for a series of cross-lines; it is used as follows:—Three main divisions, sub-divided into twelve are obvious. Each of these stands for one year, and each sub-division for one month. The vertical space,
headed Lbs., is left blank; clearly it is impossible to have a printed scale on a card of this size (9½" by 5½"), which will be comprehensive enough to chart the weights of children whose ages vary from 3 - 15 years; therefore the nurse starts the chart at such a point on the vertical line as will ensure that the chart will contain all probable gains or losses in weight over three years, each horizontal space indicating one pound, and marks against the point the child's weight in pounds at that date. A typical chart, begun in March, 1912, is shown.

The advantages of this weighing of weakly children are great. Many mothers take a lively interest in the monthly weighing, and again, in cases where a fall in weight indicates that the child is not progressing favourably, the nurse calls and informs the mother of the need for increased care and attention.

Unfortunately considerable disadvantages attach to the system as practised in the county. There are no weighing machines in the schools, and in the first place this involves that the same batch of children are not always weighed on the same type of machine. Thus some of the weights are obviously recorded on the machine
carried with us on our visits - that is inevitable; during other months the weighing may be done on a machine of a totally different type in, say, a store. Owing to variations between different machines, the results are often of little value for purposes of comparison. Again, apart from the invidious position of officials of the county being dependant on the goodwill of shopkeepers, &c., for the use of their weighing machines, the present system has the very great disadvantage that the children have to be taken from the school through the streets to the place of weighing. Curiosity is aroused and questions are asked, and the inevitable result is that the children taken to be weighed monthly by the nurse come to be branded by the neighbours as defectives. To this many mothers have, not unnaturally, raised the strongest objection, and some have refused altogether to allow their children to be weighed under these conditions. In country districts a more urgent point is the difficulty in stormy weather of keeping the children warm and dry on their way to and from the weighing place. While it is doubtless rather Utopian to hope that every school should have its own weighing machine,
yet the provision even of one machine for each large centre, of a type that could be conveyed from school to school, would be a very great benefit, and would in these districts remove the difficulties referred to, which at present hamper so much this valuable work. From conversations one has had, there is little doubt that head teachers would gladly give their help and co-operation if weighing monthly in the schools of weakly children became an accomplished fact. The cost of a weighing machine and case, such as is used at present for the routine work, is 30/- roughly.

**SCHOOL VISIT.**

On arrival at the school for the inspection proper, the first point of importance is the selection of a suitable room. By this time naturally in most schools precedent has decreed which room is used for the inspection. In small schools, with no classroom, the children are sent out to play during the inspection.

The next point of importance is to ascertain the exact numbers present to be examined. Naturally, especially after holidays, the numbers may vary from those intimated on Form 11., either by increases from new entrants, or by decrease because of children
leaving school. Furthermore, some children are often absent by accident or design, as the case may be. Therefore, it is well to get a clear idea at the start of the numbers present for examination, and of how these numbers are arrived at, i.e., how many entrants, leavers, specials, &c., and to make a mental programme accordingly.

The record cards, partly filled in by the head teacher, and the Medical Register, are obtained from the head teacher. The Medical Register is a register, (kept in each school), of the routine examinations made at each visit. Across the top of each double page is printed in large letters Children Born in the Year 1900, 1901, 1902, or whatever the year may be. The left-hand page is reserved for boys, the right-hand page for girls. Spaces are left for the name of each child, and for the month and day of the month on which it was born. Opposite each name are four spaces, headed, Entrant, 2nd Inspection, 3rd Inspection, Leaver. The register is used as follows:- As each child comes to school, the name (with month and date of birth) is entered by the head teacher under the appropriate year.
At the inspection, as each child is examined, the nurse enters the date of the examination in the proper column, i.e., under entrant, leaver, &c. The register was only started two years ago, and, therefore, the teacher's memory was largely relied on as to whether a particular child had been examined or not, and a certain amount of doubt and confusion was inevitable. For the future no such confusion will be possible, for the facts will be down in black and white, and easy of reference.

The examination proper is then proceeded with. Children are usually examined in the order of infants, girl leavers, boy leavers; special cases may be taken at the end, or more often with the other children of the same age. Children whose parents are present are usually examined first, of course, to avoid tedious waiting, but boy and girl leavers are never examined at the same time. During the examination, at least of the infants, either the services of a teacher, or of one or more of the older girls, are obtained to help with the dressing and undressing. When possible, the district nurses attend the inspection, and their presence is very desirable, not only to help with the work, but to give information as to the health of the various children, their family medical histories, and
to receive instructions as to the treatment of certain minor ailments, blepharitis, impetigo, &c., as will be explained later. Frequently, too, the local nurse acts as the medium through which messages pass from the medical inspectors to the parents as to the desirability of obtaining medical advice on the various defects found, for although defect notices are always sent to the parents, yet the spoken word frequently carries more weight than the printed one.

These various helpers act under the direction of the school nurse.

Every precaution is taken to make the room as private as possible, by covering the lower part of windows and glass partitions with blackboards, prints, paper, and divers other contrivances.

It is the duty of the school nurse to supervise the general arrangements, so as to see that no time is unnecessarily lost by waiting for children to be made ready. After the first batch of infants is brought in and weighed and measured, and placed with their record cards in their hands ready to be examined when called for, the nurse starts making advance
arrangements for the next batch of infants, girls,  
or whatever it may be. She finds out what special  
cases are up for examination, and what special point, 
hearing, eyesight, &c., has to be examined. She  
prepares the "defect list," as will be explained later,  
measures out the distance for eye-testing, looks out  
the weight charts (which she brings to the school) as  
children who have been weighed monthly, as previously  
explained, come up for examination, and generally can  
make herself invaluable.

Children are examined at a fairly average rate of  
nine per hour. Of the average 6¼ minutes devoted per  
child, ½ - 1 minute suffices for the examination of  
clothing, nutrition, teeth, cleanliness, throat, &c.  
Practically all the rest of the time is devoted to  
the examination of heart and lungs, which is most care-
fully done. It is obvious, of course, that many  
healthy children can be disposed of in less time than  
that stated; while doubtful cases may take much longer,  
and are examined by both men, and discussed at length.  
The very greatest care is taken over the diagnosis of  
lung conditions, and this point, and especially the  
diagnosis of incipient phthisis will be fully dealt  
with later.
Form 13.

To the Medical Officer of Health for the district of

I hereby give you notice that, in my opinion, the children of whom particulars are appended are suffering from Tuberculosis.

<table>
<thead>
<tr>
<th>Name of Child</th>
<th>Age</th>
<th>Place of Residence</th>
<th>Localization of Disease</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Dated this .................................. day of ........................................ 19......

School Medical Inspector.

N.B.—Any communication with regard to the above notification should be addressed to:

DR. MORISON, School Medical Officer, Carlisle.

Form 14 M.I.

School Name Address

History (A) Family—

Father Occupation

Mother

Brothers Living Dead

Sisters Living Dead

No. died of tuberculosis

No. died of tuberculosis

Other

History (B) Previous History—

Date Age

B a  o k o f F o r m x iv.

Diet

Clothing

Distance from school

Provision for drying clothes at school

Present Condition—

Height Weight Teeth

Symptoms

Physical signs

Home Conditions—

General surroundings and sanitary condition

No. of rooms No. of inhabitants

No. of occupants

No. occupying same bed as patient

Windows

Light and ventilation

Cleanliness
Phthisis (as well as other forms of tuberculosis) when diagnosed is notified on Form XXI. to the local M. O. H. This form is in duplicate, one copy being filed in the office.

Full notes on all cases of phthisis are made on Form XIV., and these forms are kept arranged in sanitary districts in loose-leaf files, and are taken back to the schools at each visit for reference, and to add progress notes.

So far as hearts are concerned, when a child is found to be suffering from organic heart disease, inquiry is made into the profession the child intends to adopt in after life. The parents are either sent for at the time and the point discussed, or a special letter is sent from the office, for it is felt that the matter of heart weakness cannot be too carefully handled, so as, on the one hand, not to unnecessarily alarm the parents, and on the other to ensure that they do not fail to appreciate the necessity for careful attention to the child's condition.

It is obvious, too, that other points frequently arise where the presence of the parents is desirable,
as, for example, when the question of a girl with very defective vision, who proposes to become a dressmaker comes up for consideration. In such cases the parents are frequently sent for, and, if unable to come, usually receive a full verbal message through the district nurse, or head teacher, as well as the usual printed notification of the defect.

The mouth and throat are examined with the aid of sterilised wooden spatulae brought by the nurse, all suspicious throats are swabbed and the swabs are dispatched forthwith in small wooden cases to the laboratory, the report from which is telegraphed to the office at Carlisle.

Hearing is tested by the "forced whisper," not by the watch, which is unsatisfactory. It is obvious that if a child repeats a word or number he must have heard the whisper, but there is no proof that where he says he hears the tick of the watch he really does hear it, and in point of fact, children have frequently been found to hear the tick of a watch which did not exist, except in their own imagination.

The eyes of the routine cases, together with any from the "defect list," or any special cases for eyes,
To the Head Teacher,

The following children have been excluded from School for the condition stated opposite their names, and cannot be re-admitted to School until the condition, for which they have been excluded, has been remedied.

Children excluded for verminous conditions should be clean, and return to School within 48 hours. Those suffering from conditions other than vermin, &c., should return to School as soon as certified by their own medical attendant to be fit to return to School.

<table>
<thead>
<tr>
<th>Name</th>
<th>Address</th>
<th>Cause of Exclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elizabeth Cameron</td>
<td>25 Main Street</td>
<td>Vermin on head</td>
</tr>
<tr>
<td>John Cameron</td>
<td>&quot; &quot;</td>
<td>Foul and filthy clothing</td>
</tr>
<tr>
<td>James Foster</td>
<td>3 High Cottages</td>
<td>Ringworm</td>
</tr>
<tr>
<td>Jane Clark</td>
<td>2 Thomas' Close</td>
<td>Scabies</td>
</tr>
<tr>
<td>William Clark</td>
<td>&quot; &quot;</td>
<td>Scabies</td>
</tr>
<tr>
<td>George Clark</td>
<td>&quot; &quot;</td>
<td>Pthirias</td>
</tr>
<tr>
<td>Janet Thompson</td>
<td>15 Main Street</td>
<td>(Excluded for six months)</td>
</tr>
</tbody>
</table>

If children excluded from School for verminous conditions are found, on examination on their return to School, to be still in a verminous condition, please re-exclude them and notify me at once.

F. H. MORISON,
School Medical Officer.
are tested usually after the routine examinations are concluded. Snellen's test types are used, and the difficulty is to get a uniform illumination, so that results are comparable, for in summer sunlight has to be avoided, and in winter it may be too stormy to go outside, and the test may have to be done in a classroom, sometimes not too well lighted. Constant practice provides considerable accuracy in estimating the influence of such varying conditions, but where any doubt prevails, care is taken to refer the cases for further observation, and not to notify the parents.

It comparatively frequently happens that children have to be excluded from school for (a) their own sake, (b) that of other children. Under (a) are included general weakness, marked anaemia, early phthisis, ulceration of the cornea, &c., under (b) are included dirt, infectious conditions, as ringworm, scabies (or the itch), impetigo (an eruption on the face or scalp), &c., and possibly phthisis, and marked mental degeneracy. The question of dirt will be considered later in detail. A list of all exclusions is made out on Form IX., which is in triplicate, and one copy is handed to the head teacher, one sent to the attendance officer, and one is filed in the office. A typical
Dear Sir (or Madam),

Your child has been examined to-day at School by a Medical Officer of the Education Committee, and has been found to be suffering from [condition].

Please see that the condition mentioned is attended to forthwith.

Yours faithfully,

School Medical Officer.

COUNTY COUNCIL OF CUMBERLAND.

MEDICAL INSPECTION OF SCHOOL CHILDREN.

To: —
DR. MORISON,
School Medical Officer,
48 Warwick Road,
Carlisle.

The undermentioned children who were excluded from School, on the [day] of [date] 191, have returned to school on the dates set opposite their names, viz.:

<table>
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<tr>
<th>NAME</th>
<th>DATE OF RETURN</th>
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</tbody>
</table>

(Signed) ____________________________
School Attendance Officer.
filled-in exclusion list is shown. Notes are filled in by the Medical Officers, according to the condition found, and these are given by the head teacher to the children, who take them home to their parents, if these are not present.

For the exclusion of such conditions as, e.g., ringworm, Form XII is used.

The local attendance officer having received the list of exclusions, it is his duty to see that the Medical Officer's note is not used as an excuse for lengthy absences from school, except where such is expressly ordered, and the return of the children to school is intimated by the attendance officer on Form X.

It having been found, as the result of some year's experience, that parents will not consult their medical men as to treatment in cases of such conditions as scabies and impetigo, which, although highly contagious and undesirable in any school, the parents nevertheless frequently regard as too trifling to justify a visit to the doctor, special notes containing advice and suitable prescriptions were drawn up, and
Dear Sir (or Madam),

Your child has to-day been examined at School, and has been found to be suffering from Scabies or "The Itch." This is a condition which is liable to spread among children, and your child has therefore been excluded from school until better.

You are advised to give your child a hot bath this evening and scrub the affected parts with soft soap and a soft nail brush. After drying him (or her), the ointment (the prescription for which is enclosed) should be rubbed into the skin. The ointment should be applied morning and evening on the two following days, and on the third day the child should be given another hot bath. A complete change of clean clothes should then be provided for the child.

If these instructions are carefully carried out the condition will probably be completely cured.

Yours faithfully,

F. H. MORISON,
School Medical Officer

Precipitated Sulphur
Prepared Chalk
Soft Soap
Vaseline
Sig.

2 drachms
3 drachms
1 ounce
1 ounce

To be used as directed.

CUMBERLAND COUNTY COUNCIL.
EDUCATIONAL (MEDICAL) DEPARTMENT.
48 Warwick Road,
Carlisle,

Dear Sir (or Madam),

Your child has to-day been examined at School, and has been found to be suffering from a contagious skin disease on the .

This child has been excluded from school until . . . he is better, as the condition is one which spreads rapidly among children.

You are advised to remove carefully all the scabs from the sore places by means of starch poultices, and then apply ammoniated mercury ointment each morning and evening.

As this condition spreads so rapidly, you are recommended to keep a separate towel, for the use of this child only, until . . . he is better.

Yours faithfully,

F. H. MORISON,
School Medical Officer

Ung. Zinci Oxidi.

1 drachm.
to 1 ounce.

To be used as directed.
are now sent to the parents of children excluded for these conditions. The notes are handed at the school to the children, as they are excluded, to take home. Frequently the teachers ask for copies of these to keep for reference, and these are gladly given. The notes referred to are shown. Forms XL1., XL1a, XLll., XLlll.).

Referring to the question of the intimation of children excluded to the attendance officer, it may here be remarked that the district attendance officers are expected to be present at the inspection of at least some of the schools in their respective districts, when that district is being visited. Such co-operation is most valuable. The attendance officer can help greatly by giving information as to the home conditions and out of school lives generally of the various children, and per contra, the Medical Officers can help the attendance officers in their pursuit of malingerers &c.

To continue the account of the inspection proper, after the above points have been attended to, the "defect list" is gone into. This, as has been explained, is the list of all children found defective at the previous examination, with the nurses comments
on visiting the home as to treatment obtained, &c., and any remarks made by the Medical Officers on special visits, &c. The actual method of compiling it will be considered later. It is obvious that such a list will contain a great deal of valuable information.

Soon after arrival at the school, the nurse hands the "defect list" to the head teacher, who marks any children who are absent, who have left school, or who have died. The remainder, i.e., those present at the inspection, are classified by the nurse, who makes up lists of the names of children suffering from the same type of defect; thus all "chest defects" are made into one list, all "eye defects" into another, and all, what are somewhat disrespectfully termed "odds and ends," i.e., tonsils, adenoids, defective hearing, bad teeth, &c., into a third. The nurse prepares these lists in spare moments during the examination of the routine cases, and hands them to the head teacher, who separates out the children, so that, when the examination of "routines" is finished, the examination of defectives proceeds without any delay.

The "defect list" finished, every child in the school, who has not been examined as a "routine," a
"special," or a "defective," is marched past the Medical Officers.

This "March Past" is most valuable. The throat of every child is examined for enlarged tonsils; a rapid examination is made of each child in passing as to its cleanliness of body and clothing, and a look-out is kept for obvious defects as squint, discharging ears, deformities, ringworm, &c., or for conditions suggesting defects as, e.g., extreme pallor, suggesting anaemia. Any conditions found are dealt with in the usual way.

The "march past" over, the inspection proper is concluded, and a talk with the head teacher follows as to what has been discovered that he ought to know—cases of serious heart disease for example, who ought not to be pressed very hard at their lessons, and who perhaps the Medical Officer advises to be unfit for physical exercises and drill; cases, too, of apparent inattention, due to defective hearing, or of apparent stupidity due to defective vision, are brought to his notice.

The school premises are then examined, and reports made as to necessary improvements in lighting, heating,
Sanitary Report Card.

CUMBERLAND COUNTY COUNCIL.

<table>
<thead>
<tr>
<th>School</th>
<th>Date of Inspection</th>
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Recommendations:

<table>
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<th>REPORTED TO COMMITTEE</th>
<th>Result</th>
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<td>Date</td>
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</table>
ventilation, and other matters of sanitation. These reports on Form XX., are laid in due course before the School Accommodation Committee. A full description of the sanitary condition of all the schools of the county has been drawn up, and is filed in the office for reference.

The record cards, exclusion lists, &c., are packed up, and either taken or despatched to the office without delay.

Mention may here be made of two other points which occasionally arise. It sometimes happens that children come with messages from their parents that they are not to be examined. Fortunately the stupid custom of an individual parent objecting to the application to his or her own children of a policy which practically all admit is, in the abstract, of the highest value, is falling into disuse. Nevertheless, though rarely, objections are raised. In considering these this rule is followed: verbal messages from the children are disregarded, written messages only are accepted, and of "Mary Jane" says that "Mother said she was not to be examined," Mary Jane is forthwith despatched home for written proof of her contentions, failing the production of which
she is examined in the ordinary way, and, indeed, rather than be bothered to go home, Mary Jane usually falls into line with the others.

The second point referred to is that sometimes cases arise which do not profit by attendance at school; such are deaf mutes, children totally blind, &c. These cases are fully reported on to the School Medical Officer for the county for consideration as to removal to a special school. Mentally defective children are not at present dealt with in any way in the schools of this county, although there are enough of such to make the establishment of a special school for them a matter of practical politics. The following rules are observed in regard to these children:

(1) If children who show signs of mental deficiency interfere in any way with the work of the school, they must be excluded from school.

(2) If such children are quiet and well-behaved, and do not interfere with the progress of the school work, no action need be taken.

All these points having been attended to, the inspection is at an end, and the "Ploughman," if one may so put it, is at liberty to "homeward plod his weary way."
PROMOTION OF CLEANLINESS.

The question of the eradication of dirt from the schools of the county is one of the most important with which we have to deal. There is the purely physical side of the question - that the health of the verminous and dirty child suffers from his or her condition; there is the sociological side - that the moral tone of homes from which children are habitually allowed to come dirty and verminous must be low; and there is the aesthetic side of the question, the extreme unpleasantness to which the teachers and fellow scholars of these verminous and dirty children are subjected by daily contact with them. For these reasons, which mean much more to the public well-being than can be briefly put down in black and white, and for many others, the raising of the standard of cleanliness among the children of the "submerged tenth," or of those who approximate to that class, is one of the chief duties and privileges of those who are connected with Medical Inspection.

Perhaps in this country the belief in the value of vermin as a domestic asset never reached the fine art to which it has attained in some parts of Russia,
Dear Sir (or Madam),

Your child has been examined to-day at School by a Medical Officer of the Education Authority, and has been found to be infected with due to neglect, and has been excluded on this account.

Please see that this child is cleaned, and that he returns to school within hours.

Yours faithfully,

[Signature]

School Medical Officer,
where, according to the author of "The Real Siberia," buckets of vermin are purposely deposited in every new cottage by the peasant inhabitants. Nevertheless, until comparatively recently, the presence of vermin on the head or body of the child was widely regarded by a certain class as a mark of health, and it was more or less true to say of a certain insect, which shall be nameless, that it was "high placed in hall, a welcome guest." Happily nowadays this opinion, even in the class referred to, is regarded as of doubtful scientific value, and this important step has been gained, that in nearly every case parents who keep their children verminous know they are doing wrong, and are ashamed when their children are excluded from school on this account. That is a great point gained, and measures based on this point practically entirely, have removed 75% of the dirt from the schools of the county within the past fifteen months.

Previous to June, 1912, the following measures, which are still used at the routine inspections, were the only measures employed. Children found to be verminous, head or body, or children whose clothing was "foul and filthy," were excluded from school forthwith, and Form XI., filled in according to the
particular case (48 hours being allowed for thorough cleansing of the child) was sent from the school to the parents.

In a few very bad cases, prosecution was threatened, and in one or two this threat was carried into effect with salutory results.

Copies of the list of verminous children were handed to the head teacher and the attendance officer, and the home of every child was visited by the nurse, whether vermin or only nits were found on the child, and the need for care and attention and attention to prevent a recurrence of the condition was fully impressed upon the parents. This visiting it need hardly be remarked, entailed a vast amount of labour upon the nursing staff of the county.

Elaborate though these measures were, they failed to materially reduce the dirt then widely prevalent in the schools of the county. The reason was not difficult to discover; the routine visits to the schools took place once a year, and ample warning was given of the date and hour of the forthcoming visits to the parents of the children to be examined, and, therefore, this information soon became public
property. Therefore the parents of the children who had been habitually dirty and verminous since the previous visit had two alternatives, either (a) to keep their children at home on the day of visit, or (b) to clean them up for the occasion. In either case the visit, as an indication of the state of cleanliness of the school, or as an influence for the prevention of dirt was reduced to a farce, the children being allowed to relapse into their verminous condition for the twelve months thereafter till the next annual visit.

Therefore, early in 1912, the "Surprise Visit" was instituted. This most wise institution provides that visits are paid to schools at random throughout the county absolutely without warning, and every child in the school marched past the Medical Inspectors. Two qualifications may be added: (1) when the expression "at random" is used, it does not imply that no method is adopted in selecting schools for surprise visits, but that there is nothing approaching regularity or system in the visits. The dirtiest schools were quickly obvious, and these were visited again and again; (2) while the entire school was marched past on the first, and perhaps on the second surprise visit a short
# CUMBERLAND COUNTY COUNCIL.

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**EDUCATION (MEDICAL) DEPARTMENT**

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**Facsimile of Form 28, (M.I.)**

<table>
<thead>
<tr>
<th>III.</th>
<th>IV.</th>
<th>V.</th>
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<tbody>
<tr>
<td>Heads</td>
<td></td>
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</tr>
<tr>
<td>Body</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clothing</td>
<td></td>
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</tr>
</tbody>
</table>

**Remarks:**

The above School was visited on [date] by [name], for the purpose of examining children for verminous conditions.

Number of Children examined [number]

Summary of conditions found: --
leet of the children who required watching was thereafter drawn up, and at future visits these only were examined (with possible additions suggested by the head teachers); by this means the dirty children in each school were overhauled with the minimum of inconvenience to work at the school, and of loss of time to the medical staff. These visits revealed the fact that in 48 schools, in which all the girls were examined (during 1912), 2,013, or 48.4% were dirty or verminous. In all, last year 124 surprise visits were paid in the county.

The result of these visits has been in the highest degree satisfactory. Many schools have been absolutely freed from dirt, and practically all have been most markedly improved. In some schools the percentage of verminous children has fallen from 25% to nil.

For summarising the facts obtained at these surprise visits Form XXVIII. is used.

Valuable as this work has been, nothing is more certain than that as soon as the system of surprise visiting ceases, so soon will dirt run rampant as before.
Instructions for Cleansing Heads.

Wash the head well with soft soap (any soft soap will do, but Cyllin soap is probably the best), rubbing into a lather, and comb with a fine toothed comb while wet. Roughly dry the hair, and fasten a piece of thick flannel, wrung out of equal parts vinegar and water, securely round the head, cover with some waterproof material, and let the child sleep with this on.

In the morning wash with soft soap, and comb as before. If all the nits are not removed, repeat the treatment the following evening.

If the nits are very thick on the hair, or if the head is broken out into sores, it is best to cut the hair short. If the head is broken out into sores, vinegar should not be used, as it will hurt the child, but White Precipitate Ointment (which must be carefully handled, as it is poisonous), should be well rubbed into the hair at night, and the hair washed and combed in the morning.

It is advisable to keep the hair of girls in plaits while at school, to avoid the risk of infection from dirty children.

Vermion the heads of children do them much harm, by the constant irritation, causing loss of sleep, and causing the child to scratch the head incessantly, so forming sores.

F. H. MORISON,
School Medical Officer.

Instructions for Cleansing Bodies.

Wash the child thoroughly with soap and warm water. As vermin and their eggs of vermin lie chiefly in the folds of the bed-clothing and underclothing, all underclothing the child has been wearing, and all bed-clothing, sheets, etc., with which the child has been in direct contact while sleeping, should be changed at the same time as the child is bathed, and clean clothing provided.

The infected bed and underclothing should be steeped overnight in soapy water, and washed thoroughly next day.

The child's outer clothing and the rest of the bed-clothing should be thoroughly brushed or beaten and shaken in the open air.

N.B.—To cleanse the child's body without attending to its body and bed-clothing is quite useless for getting rid of vermin.

F. H. MORISON,
School Medical Officer.
A nurse has, therefore, been appointed by the Education Committee to devote her time to this work alone, for it is obvious that it is not economical to employ the time of the Medical Inspectors for work of this kind at the expense of the time available for strictly medical work. This nurse is termed the "Exclusion Nurse." She will devote her time to a carefully planned system of "surprise" visiting all over the county, and will visit the homes of all dirty children again and again, till the parents definitely understand that cleanliness will be insisted upon. She will, where necessary, leave copies of Forms Xlll. and Xllla.

It may here be mentioned that the co-operation of the head teachers has been in most schools of the utmost value in this campaign of cleanliness. The influence of the work of the County Health Lecturer, too, has been of much value. The lecturer pays regular visits to the schools, and talks to the children on the need for personal cleanliness, and gives such obvious hints as e.g., advising the girls to wear their hair in plaits while at school to avoid any risk of infection from dirty children.
SECOND EXCLUSION NOTICE.

CUMBERLAND COUNTY COUNCIL.

EDUCATION (MEDICAL) DEPARTMENT.

38 Warwick Road, Carlisle, .................. 191....

DEAR Sir (or Madam),

Your child ...................

who was excluded from ................. School on .................
on account of /his verminous and filthy condition, has been examined again to-day, and has been found to be still in a verminous and filthy condition. Unless your child is cleansed and maintained in a suitable condition to attend school you render yourself liable to prosecution.

Yours faithfully,

F. H. MORISON,

School Medical Officer.

Present Condition of Child ...................
The method now in vogue for combating dirt includes, therefore, all the original procedure, plus the surprise visit. One point of difference may be noted, however. No homes are now visited where dirt is the only defect found on the children, and details of dirty and verminous conditions are not now entered on the defect list. These duties will devolve on the nurse referred to, who will visit the homes, and will keep her own lists. The nurse will be directly responsible to the School Medical Officer, who will superintend and direct her work.

There still remain in the schools a number of habitually dirty children, whose parents are incorrigible. In these cases Form Xla. is now sent to the parent from the school. It will be noted that prosecution is threatened, and this further step reduces still more the number of habitually dirty children. This threat, however, fails to deal effectively with a few extremely bad cases. It is difficult to know how to deal with these, for even prosecution has failed in some cases, where, after release from a term of imprisonment for this offence, parents have been found within a few weeks to have
Dear Sir,

As a result of the inspection of the children at School, it is reported by the School / Nurse Officer that the condition of the child mentioned below is a prima facie case indicating that conditions exist at the home which require remedying.

I shall be glad if you will let me know that the matter is receiving attention.

Yours faithfully,

F. H. MORISON,
County Medical Officer of Health.

To Dr. ........................................ Medical Officer of Health.

Child's Name ........................................

Address ........................................

Condition found ........................................

In the execution of my duties I have visited the above house, which is in—

(a) an overcrowded condition;
(b) a filthy state, and requires thoroughly cleansing;
(c) a dilapidated and insanitary condition.

I am, yours truly,

School Nurse
or School Attendance Officer.
allowed their children to become verminous again.

In the matter of prosecution, by the way, the School Medical Officer is placed in a singularly weak position by the fact that no cleansing stations (under the Children Act, 1908), exist in the county, and, therefore, prosecutions, so easy to undertake where these are provided, have to be taken, not under Section 122, but under Section 12 of the Act, by which it is required to prove "continued neglect" to the danger of the child's health — a much more difficult thing to do. The School Medical Officer has under consideration measures which, while avoiding the question of prosecution, will, it is hoped, bring these parents to a sense of their neglected duties.

In cases where children come to school habitually verminous or filthy, the attention of the Local Medical Officer of Health is drawn to the presumed insanitary condition of the home from which the child comes by means of Form XXXIII. Similarly, when the school nurses or the attendance officers in the course of visiting the homes come across insanitary or overcrowded houses, they notify the County Medical Officer of Health on Form XXXII, and the County Medical Officer of Health advises the Local Medical Officer of the state of affairs found in the house.
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<tr>
<th></th>
<th>BOYS</th>
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<td>FOUL AND FILTHY</td>
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Forms Xla., XXXIIl. and XXXII., are in duplicate, carbon transfers being made for office reference. Forms XXXII. and XXXIII. have been drawn up on the lines of similar forms suggested in the Annual Report of the Medical Officer of Health for Derbyshire, for 1911.

In order to admit of quick summarising for statistical purposes of the conditions relating to dirt found at the routine visits, and also for comparing the relative percentage cleanliness of the schools of the county, which comparison will probably be published in each Annual Report, Form XXVI. has been drawn up. Under Special are entered the facts relating to children examined as special cases, or defectives, or in the march past, these facts being entered by the Medical Officers in the schools. Under Ordinary are entered the facts relating to the cases examined as routine examination, these facts being entered by the clerk in the office as he obtains the facts from each card when making up the statistics.

Lastly, in relation to the question of promoting cleanliness, it should be mentioned that the School Medical Officer authorises (when application is made for this authority by the head teacher) head teachers
CUMBÉLAND COUNTY COUNCIL.

EDUCATION (MEDICAL) DEPARTMENT.

48 WARWICK ROAD,

CARLISLE.


MEDICAL INSPECTION OF SCHOOL CHILDREN.

To the Parents or Guardians of

............................................attending at
............................................School.

The above-named child has been examined by a Medical Officer of the Education Committee, who recommends you to obtain the advice of your Doctor with regard to treatment for ............................................

Enclosed is a letter which I shall be obliged if you will kindly hand to your Doctor.

Yours faithfully,

F. H. MORISON,

School Medical Officer.

CUMBÉLAND COUNTY COUNCIL.

EDUCATION (MEDICAL) DEPARTMENT.

48 WARWICK ROAD,

CARLISLE.


MEDICAL INSPECTION OF SCHOOL CHILDREN.

Dear Sir,

The child.............................................

has been examined, and found to be suffering from.............................................

.............................................

I have therefore advised the parents to seek your advice.

Yours faithfully,

F. H. MORISON,

School Medical Officer.
to examine children for dirty and verminous conditions, which power the head teacher otherwise, of course, has not got. It is satisfactory to note that the majority of head teachers have applied for and received this authority.

NOTIFICATION OF DEFECTS.

So soon as possible after the record cards reach the office, those defects which the Medical Inspectors have ear-marked for notification are notified to the parents. It is obvious that it is highly desirable that notification should follow within a week at most of the inspection. Notification is made to the parent on Form XV., enclosed in an envelope addressed "To the Parents or Guardians of .................." (the child's name being filled in), similar to the sample envelope shown before. Enclosed in this envelope is another with a note, which the parent is requested to hand to the doctor when the visit is paid to or by him, Form XVII. In the parent's note the defect is stated in simple terms, and in the doctor's note the usual medical terms are employed. Formerly the note to the doctor took the form of a postcard, with an attached.
DEAR SIR (or MADAM),

At the recent Medical Inspection of the children in the above-named school, where your child was examined, one of the Medical Inspectors reports that he (she) was in such a state of health as to be very susceptible to the infection of consumption, although no definite sign of the disease exists at present.

I would urge you, therefore, to let him (her) have a nourishing and easily assimilated diet, such as porridge, good milk or cream, plenty of butter (or fat in any form), and above all to let him (her) have as much fresh air as possible.

There is no reason why he (she) should not attend school, and during the intervals be out in the fresh air.

PLenty OF SLEEP IS ESSENTIAL, and the air in the bedroom should be pure, as nothing conduces more to ill-health, especially of children, than sleeping in a stuffy atmosphere. Therefore the bedroom window should be open night and day, and the chimney (if there is one) should not be blocked up.

If possible he (she) should have a bedroom alone.

You have no cause to be anxious about the child; with care he (she) will get perfectly strong. This letter is only sent to ask you to take extra care.

Yours faithfully,

F. H. MORISON,
School Medical Officer.

N.B.—The nutritive properties of milk can be greatly increased in the following way:

Place a glass of milk, containing a piece of mutton suet about the size of a nut, in a saucepan of water, on the fire, and gently warm and stir until the suet is dissolved.
stamped, addressed, and printed postcard, which he was requested to return to the office. A considerable number of the practitioners of the county did return these cards, and their courtesy was duly appreciated, but as the majority paid no attention to this request, the present form, not calling for any reply, has been instituted.

In a number of conditions, which (partly because in some cases parents were not sufficiently impressed with their importance to consider them worth a visit to their doctors, and partly for other reasons), were found to be seldom attended to, special forms are issued to the parents.

These forms, Nos. XXIII., XXIV., XXXVIII. and XXXVIIla., call for no comment, except that the parents are personally instructed how to paint the enlarged tonsils dealt with in Form XXXVIII. by the nurse when she visits the home.

In the case of blepharitis, the frequent cause in after life of unsightly eyelids, though considered trivial by most parents, the instructions on
Enlarged tonsils, which are usually accompanied by adenoids, cause difficulty in breathing through the nose, and the child then resorts to mouth breathing, which ultimately causes the child to develop a dull and stupid expression. They also often lead to poor development and even deformity of the chest, and general ill-health. A child with enlarged tonsils is more liable to various illnesses such as diphtheria, scarlet fever, quinsy, sore throat, and bronchitis. Deafness also is sometimes due to enlarged tonsils and adenoids.

If in spite of this treatment the tonsils continue to grow larger, you are advised to consult your own doctor, as an operation will probably be necessary with the liquid mentioned in the enclosed prescription. The liquid should be painted over the tonsils every night and morning by means of a soft camel hair brush, which can be obtained along with the prescription. The child should also be taught to keep the mouth closed, and to breathe through the nose.

If in spite of this treatment the tonsils continue to grow larger, you are advised to consult your own doctor, as an operation will probably be necessary to remove them.

Yours faithfully,

F. H. MORISON,
School Medical Officer.

R.
Th. Iodi
Glyceri Alumini
Sig.
To be painted over the tonsils as directed.

COUNTY COUNCIL OF CUMBERLAND.

To:—
The Head Teacher.


MEDICAL INSPECTION OF SCHOOL CHILDREN.

School.

Will you please be good enough to hand the enclosed envelopes to the children named, and ask them to deliver same to their parents.

F. H. MORISON,
School Medical Officer.

Enclosures.
Form XXXIV. are sent direct to the nurse, who calls and instructs the parents, to whom a mere notification, Form XVI., is sent. This is because the instructions as to treatment are obviously rather elaborate, and many parents would fail to understand them, whereas by the present method the nurse pays several visits till the parents become fully proficient, by instruction, in the matter of treatment.

All these forms referred to, with the exception of No. XXXIV., are sent in one parcel to the head teacher of the school concerned, who is requested in Form XXX. to hand the notes to the children to whom they are addressed. The children take them to their parents, and a large sum is thus saved yearly in postages.

In a few cases, usually cases of heart disease, special letters are posted direct to the parents. The reason for these letters was explained under "school visit." A typical letter is appended:
FORM 16 (M.I.)

CUMBERLAND COUNTY COUNCIL.

EDUCATION (MEDICAL) DEPARTMENT.

48 Warwick Road,
Carlisle.


MEDICAL INSPECTION OF SCHOOL CHILDREN.

To the Parents or Guardians of

The above-named child has been examined by a Medical Officer of the Education Committee, and has been found to be suffering from soreness of the eyelids.

The nurse will call in a few days and instruct you how to treat this condition.

Yours faithfully,

F. H. MORISON,
School Medical Officer.
SAMPLE LETTER.

Dear Madam,

Your daughter, Mary, was examined at .......... School on the 19th August. She was found to be suffering from a certain amount of heart weakness. Apparently this does not cause her inconvenience at present, but it is well that you should know of it, so that you may see that she does not undertake any work involving heavy strain, either now or when she comes to choose her profession in after life.

It would be well also, unless your own doctor knows of the condition, to take the child to see him at some convenient time, as it is advisable that he should know of it.

Yours faithfully,

F. H. MORISON.

School Medical Officer.

NOTE.- These letters are varied to suit individual cases, are typewritten (not printed) and are posted direct to the parents to emphasise the personal nature of each letter.
DEFECT LIST.

The "defect list," so called, of course, because it is a list of the defects found in each school at the routine visit, is made up when the defect notices are sent out from the office. It has been found convenient to use large sheets (16" by 12") of thin paper for this purpose. At the head is a space for the date of inspection and name of the school. The page is ruled into six vertical columns, and a typical defect list (with fictitious names) is appended to demonstrate the method of using. Until recently, the age of each child was entered on the list, now the standard is substituted for the age, because in large schools it is much easier to find individual children by a reference to their standards than to their ages, because the age is only an approximate, whereas the standard is a definite guide to the child's position in the school for subsequent visits.

Name and address are entered as usual, and defects are entered very briefly, only the chief defects being entered, and these in abbreviations, as indicated earlier. The point is, of course, that these lists
only indicate the children to be kept under observation -
the full facts being entered on the record cards.

Under Remarks of Nurse, the nurse enters the
facts as to progress, treatment obtained, &c., as
she finds them on visiting the home. Great care
is taken that these remarks are not ambiguous, and
that they are accurate. Where district nurses
undertake the visiting, they report on other sheets
to the County Superintendent, and the school nurses
for the county enter the remarks on the defect list.
Remarks on first visiting of a case are entered in
red ink.

Where a second visit is paid to a school, the
defect list is taken to the school, the Medical
Officers, therefore, having full information before
them on re-examining the case. The Medical Officer
enters his remarks at the second visit under Remarks
on Re-examination, and indicates whether the nurse
is to pay a further visit or not; if such further
visit is paid, the nurse enters her remarks under
her previous ones, but in black ink to avoid confusion.
The defect list is then filed in the office, and taken to the school at the routine inspection next year, when the Medical Officer summarises the then state of affairs, and his summary of the case is then transferred to the new defect list, together with the list of new defects discovered at that inspection.

So far as possible, the same kinds of defects, e.g., those of vision, are grouped together for ease of reference.

As has been previously noted at the routine visit, one of the first points the nurse has to attend to is the revival of the defect list, (brought to the school by the Medical Officers), by the head teacher, who marks with distinctive marks all on the list who are up for examination as routine or special cases, or who are absent, ill, or who have left. In cases where the child has gone to another school, the name of that school is, if known, entered opposite the child's name, so that the facts can be transferred to the list for that school. The head teacher also enters the standard in which each child then is, to carry forward this
information for the new defect list. The defect list is then returned to the nurse, who makes out lists on slips of paper of all the children present who are not up for routine or special examination in any case. These children are then at a convenient time during the inspection re-examined as "defectives." In the lists which the nurse makes out the same type of defects are grouped together; thus, say, "infant chest defects" will form one list. These lists are handed by the nurse to the head teacher some little time before the Medical Officer is ready for the children, and the head teacher gets the children together, so that no time is lost in waiting for them.

Five copies are made of each defect list, and are distributed as under:

Two copies are sent to the County Superintendent of Nurses.

One copy is filed in the office.

One copy is sent to the Superintendent Attendance Officer.

One copy is sent to the school.

The object of sending one copy to the school is to have a list of defects easily available when
**DEFEKT LIST.**

**Date of Inspection:**—3rd March, 1913.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Name</th>
<th>Address</th>
<th>Defect</th>
<th>Remarks by Nurse</th>
<th>Remarks on Re-examination</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>(N.N: M. Sy.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Goodfellow, Mary</td>
<td>2 Low Street...</td>
<td>2 T. &amp; Anm.</td>
<td>Seen Dr. To have operation later; having medicine, improved.</td>
<td></td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Revisit.</td>
<td>Still nothing done, parents are v. poor.</td>
</tr>
<tr>
<td></td>
<td>Flynn, Maggie</td>
<td>15 Main Street</td>
<td>Hem. Mur.?</td>
<td>Absent, leaving school shortly.</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE.—** Under "Remarks by Nurse," the red ink indicates remarks made on first visiting, the black ink, remarks made on second visiting.
the School Medical Officer of his Assistants pay casual visits to any school when passing.

Each defect list is stamped with a file number, and these numbers are indexed for easy reference; further, each list is stamped with the date on which the defect notices were issued. A mass of important information is, therefore, collected on the chief, or office, copy of the defect list.

A specimen extract from a defect list is shown. The information on it, read in the light of the abbreviations, of which a list was given earlier, is as follows:-

The routine visit was paid on 3rd March, and defect notices were sent to the parents on 6th March.

The first child, Elsie Graham, (Standard V.), was found to be pretubercular, and to have slightly enlarged tonsils, these defects being notified to the parent; a systolic mitral murmur was not notified. The nurse on visiting found that a doctor had been consulted, the child was having attention and improving; tonsils were being painted. At the second visit to the school, on 8th May, the child was again seen, a parent being present. The child was improving still, and was going to the country for a change.

The second case, Mary Goodfellow, was notified as having very large tonsils and anaemia, and the nurse reported that the doctor had been consulted, had treated the anaemia, and had arranged to remove the tonsils; the case was, therefore, not seen at the re-visit.
The third case, Jane Ann Russell, was notified as consumption (other evidences of tuberculosis and general debility were glands and scars in the neck, and scars of ulcers on the cornea of the eye, these other evidences being regarded as not calling for the treatment at the time were not notified). The nurse reported that the child was being well looked after by the parents, no doctor having been called in. At the re-visit the father, an old army man, was present, and explained what he was doing for the child. The lung condition was in statu quo, and a change to the country was advised.

The fourth case, Margaret Richardson, was starred as urgently demanding treatment, the tonsils being excessively large, the vision was defective, and these points were notified. A heart condition was not notified, probably because the parents had previously received notice of this defect. The nurse at her visit reported that nothing had been done. The child was seen again at the re-visit, and the condition of tonsils and vision were found unchanged. The defects were re-notified, and the nurse instructed to re-visit the home; the parent was not present at the re-visit. At her second visit, the nurse reported that the parents were too poor to pay for glasses, or for an operation for removal of the tonsils.

The fifth case, Maggie Flynn, has cardiac murmurs, thought to be due to bloodlessness; no definite diagnosis being made, the case was not notified. The child failed to appear at the re-visit, this being explained probably by the appended note to her case.

VISITING.

Supremely important though the question of visiting is, there is little to be said about it. The essence of successful visiting obviously lies,
not so much in any system, as in the manner in which the individual parent is handled when seen by the nurse about the child at the home.

In Cumberland the visiting is carried out by district nurses in districts where these are, and in other districts by the county school nurses, of whom there are two. The whole visiting is under the direction of the County Superintendent of Nurses. It is a fit and proper thing to say here that the visiting is very well done indeed, and frequently in the face of difficulties known to but few. It is a common thing for the nurses to have to start early in the morning, and after a considerable train journey, to spend the day cycling to scattered and remote houses among the fells in all weathers, frequently being wet through for the greater part of the day. In a county like Cumberland it is a remarkable fact that no defect, however trivial, passes without being visited once or more as may be necessary, however isolated the home.

The general scheme guiding the work of the nurses is as follows:—Each school nurse goes with the Medical Inspectors to the schools for one month,
CUMBERLAND COUNTY COUNCIL  

EDUCATION (MEDICAL) DEPARTMENT. 

Report on School Visiting for the month of ........................................... 10

<table>
<thead>
<tr>
<th>SCHOOL</th>
<th>By whom visited, S.N. or D.N.</th>
<th>Number of cases visited</th>
<th>Number of visits paid</th>
<th>Defects referred to Doctor</th>
<th>Defects not referred to Doctor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Number not seen by Doctor</td>
<td>Number seen by Doctor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Parents referred</td>
<td>Other reasons referred</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Treated</td>
<td>Un-treated</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>In suspense</td>
<td>Refused treatment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Treated by Parents</td>
<td>Treated by Parents</td>
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<td>Treated by Parents</td>
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<td></td>
<td>Treated by Parents</td>
<td>Treated by Parents</td>
</tr>
</tbody>
</table>

This Form provides for 24 Schools.

BACK OF FORM 39.

Number of children weighed during month
Number of visits to oal cases
Number previously untreated who have been treated during month.
Remarks

School Nurse
County Superintendent
and during the following month, when the other nurse is at the schools, she visits the homes of the children found to be defective at the schools which she attended the previous month, and attends to the weighing previously referred to, &c. The obvious advantage is that the nurse who visits the home in each case has seen the child examined in the school, and frequently has received special instructions at the time; this holds good in the case of district nurses too, for whenever possible these attend the inspections.

Care is taken by the nurse when visiting to get at the real facts of each case as to treatment, &c. If objections are raised by the parents, she endeavours to overcome these objections by tactful handling of the case, and to persuade the parents to seek medical advice. If medical advice has been obtained, she makes notes as to the type of treatment obtained, &c. Her observations are then entered on the defect lists, and these along with a summary of the month's work, on Form XXXIX., are returned to the office on the first day of the following month. The district nurses send their returns in to the County Superintendent, and the school nurse, who is responsible for the visiting during that month, enters the district nurse's
observations on the defect list, and includes her figures in the summary on Form XXXIX.

The district nurse returns her detailed list of visits paid to each case on a special form, on which a space is provided for each day of the month. The general summary on Form XXXIX. is signed by the school nurse responsible, and is countersigned by the County Superintendent.

RE-VISITS TO SCHOOLS.

For a long time it has been felt that, in the larger schools at any rate, the work has lost some of its effectiveness, because of the long intervals between visits. A system has, therefore, been instituted this year by which in future all the larger schools, and, if possible, all schools in the county, will be re-visited from two or three months after the routine visit. For certain reasons the re-visiting this year has had to be confined chiefly to the urban districts.

At these re-visits, all phthisical and pretubercular children, and all those suffering from organic heart disease, are re-examined.
Also all cases of defective vision, of great enlargement of the tonsils, of discharging ears, &c., and generally all cases which a careful study of the defect lists and of the nurse's observations on visiting seem to indicate as profitable for re-examination. Any case, which from such a study of the facts might possibly be considered unnecessary to re-examine, but which the Medical Officer at the routine visit decides to see again at the re-visit, is marked with an asterisk (starred) at the routine visit, so that it may not be overlooked.

These re-visits are most useful from many points of view. At them, for instance, the diagnosis in all important cases is revised and thus, for example in a case of doubtful phthisis the diagnosis at the routine visit is merely considered as tentative, and no definite steps as to notification, &c., are taken until and unless the diagnosis is confirmed at the re-visit. Thus, in difficult cases, the case receives the careful consideration of both Medical Inspectors at both visits before a final diagnosis is made.
FORM 44. (M.I.)

CUMBERLAND COUNTY COUNCIL.

EDUCATION (MEDICAL) DEPARTMENT.

48 WARWICK ROAD,

CARLISLE.

Dear Sir (or Madam),

Your child [name not visible] was examined on [date] and his condition was such that it was thought advisable to examine him again at an early date.

The Medical Inspectors will visit the above school on [date] at [time], and you are requested to be present at that time.

Yours faithfully,

F. H. MORISON,
School Medical Officer.

FORM 36. (M.I.)

CUMBERLAND COUNTY COUNCIL.

EDUCATION (MEDICAL) DEPARTMENT.

48 WARWICK ROAD,

CARLISLE.

Dear Sir (or Madam),

I beg to inform you that the above-named School will be visited on [date] at [time], for the purpose of re-examining the children mentioned below, who were found defective at the Routine Examination.

I shall be obliged if you will prepare a room for this purpose, and see that these children are present on that day.

Notice of this visit has been sent to the parents of the children.

Yours faithfully,

F. H. MORISON,
School Medical Officer.

Standard. Name.

To:—
The Head Teacher.
To these re-visits the parents of all children to be re-examined are specially invited on Form XLIV. These forms are sent in envelopes of the type previously referred to, marked with the names of the children, to the head teacher to save postage, and he is requested to hand them to the children.

The list of children to be examined is intimated to the head teacher on Form XXXVI., so that he may have them ready.

As it is undesirable to keep parents waiting unnecessarily, the list of children to be examined is divided into batches to take about half-an-hour each, and the parents are notified of the precise time at which their children will be examined.

The success of these re-visits, experimental though they are at present, has been very gratifying. So far this year 1,074 cases have been notified for re-examination in those schools which have been re-visited; of these 951 have been re-examined, 71 were absent, 52 had left school. Of the 1,022 children still at school, the parents of 526 children attended the re-examination of their children.
Considering the very recent institution of these re-visits, the presence of 51.5% of parents at them is very satisfactory.

The parents are mostly prompted to attend by a genuine interest in their children's welfare, and they are grateful for the interest taken in them. Each case is discussed with the parents, the need for consulting their own doctors, and getting advice and treatment, is emphasised. Parents explain their difficulties, and these are discussed with them. In cases which are obviously cases for a specialist, parents are informed of the days and hours at which the specialist attends the hospital it is proposed to visit. Any special travelling facilities as to cheap fares, &c., are explained as far as known, and in certain cases letters are given to the parents to hand to the specialist. On the other hand, parents who have been neglectful are sharply spoken to, and the probable consequences of their neglect in after life to the child are pointed out.

SECOND VISITS BY NURSES.

In certain cases, where, for example, the parents have failed to appear at the re-visit to the
school, and where the defect has not improved after treatment or otherwise, the nurse is instructed to pay a second visit to the home, the defect meantime having been re-notified to the parents.

Sometimes, too, the promises to have the defect attended to made by the parents at the re-visit fail to convince, by reason of their very volubility or otherwise, and to such cases also the nurse is instructed to pay a second visit.

Reports of such second visits are entered on the defect list, and on Form XXXIX., as in the case of the first visiting, and returned to the office.

THIRD VISITS BY NURSES.

If it is deemed advisable, after the report on the second visiting has been examined, the nurse is instructed to pay a third visit to the parent.

COMPILING OF STATISTICS.

The handling of the statistics on the record cards and defect lists, so as to get the most out of them, is a task of great magnitude. Formerly one of the
Assistant Medical Officers undertook this work at the end of each year, the work taking from six weeks to two months to accomplish. This method was unsatisfactory, for besides being extremely monotonous to sit and add and subtract, divide and multiply the same class of figures for weeks on end, it involved that the time of the man employed was lost to the work of Medical Inspection proper.

Now, however, an addition to the office staff allows of the statistics being gradually compiled during the year as the record cards from the schools come in.

Special statistical forms are employed, which after several changes now appear to be as complete and compact as possible. The headings of these are appended.

The statistical sheets (Forms XXXVII., a, b, c, &c.) are too large to admit of easy reproduction. The headings used are:-

........... district of ..........., School,
Vaccination (1., 11., 111., IV., unvaccinated),
Clothing (1., 11., 111., IV., V.), Nutrition
(1., 11., 111., IV., V.), Cleanliness (Head,
1., 11., 111., IV., V.; Body, 1., 11., 111.,
IV., V.), Teeth (1., 11., 111., IV., V.),
Nose and Throat, Tonsils (1., 11.), Adenoids
(1., 11.), Glands (1., 11., 111.), External Eye
Diseases (strabismus, blepharitis, other diseases), Vision (R.D.), Ear Disease, Hearing, Speech, Mental Condition (I., II., III.), Heart, &c. (Functional, Organic, Anaemia), Lungs (Phtisis, Pretubercular, Weak Chest, Other Diseases), Nervous Diseases (Epilepsy, Other Diseases), Tuberculosis (active, latent), Rickets, Deformities (Rickets, Infantile Paralysis, Other Causes), Ringworm, Impetigo Contagiosa, Scabies, Other Infectious or Contagious Diseases, (Here follow several columns without headings, their use is explained later), Other Diseases, Total number examined.

Each statistical sheet provides for the figures relating to 24 schools.

A number of files are employed headed "Routine Inspections: Entrants, Boys, Rural," or "Routine Inspections: Leavers, Girls, Urban," and so on. Separate files are devoted to the statistics regarding special cases examined, to heights and weights, &c.

It will be noted that the main headings are subdivided freely, thus, e.g., Deformities are subdivided into those due to Rickets, Infantile Paralysis, &c., and Lung Diseases are divided into four groups. By detailing to this extent opposite the name of each school any special information can be obtained at any time with ease.

Thus, for example, the Chief Medical Officer for the Board of Education asked a short time ago for
certain facts relative to epileptic children in the county. By running one's finger up the sub-division, Epilepsy under Nervous Diseases, it was easy to locate the schools in which there were epileptic children, and a reference to the outside of the file stated the sex of the child, and whether entrant or leaver. These facts being ascertained, and a reference to the letter index previously referred to having located the defect list, the names and addresses of the individual children were found on the defect list with the minimum of trouble, and what facts were not on the defect list were obtained by a circular letter to the parents.

It will be noted that a number of spaces are left without headings on Form XXXVII.; these are to provide for any special inquiry that may at any time be wanted. Thus, e.g., if it was desired to know the number of children suffering from Asthma, and their geographical distribution in the county during the year in question, asthma, instead of being entered under Other Diseases of the lungs, would be entered under one of the blank columns, which would be labelled Asthma for that year, and the number of cases of asthma, and their age, sex and geographical distribution, would be easily found out.
During 1912, the statistics were entered boys and girls on the same files, figures relating to boys being entered in black, and those relating to girls in red ink. The contrast is effective, and at no loss of accuracy, the number of files was reduced by nearly one-half. A point like this, of course, clearly must depend on the wishes of the person compiling the statistics.

As the statistics of eye defects have to be rather elaborately sub-divided, a special form is provided for these.

The totals having been obtained, the figures are calculated to averages or percentages, as the case may be, and graphs are drawn in the usual way, time-saving devices being employed, of course, wherever possible as, for example, in transferring English heights and weights to the metric system, when the usual anthropometric tables are employed.

CO-OPERATION WITH OTHER DEPARTMENTS.

Practically all branches of public health work gain very materially by co-operation with the officials of allied departments, and the work of the
CUMBERLAND COUNTY COUNCIL

EDUCATION COMMITTEE

I recommend the closure of ........................................ School from ........................................ till ........................................ (inclusive), for the following reasons:

(Signed) ........................................ Medical Officer of Health

Date ........................................

(Countersigned) ........................................ School Medical Officer

Date ........................................
School Medical Officer is no exception. The Assistant School Medical Officers being primarily Assistant Medical Officers of Health for the County, the co-operation between the school work and general public health work is easy and direct. Such co-operation takes the form of reporting on insanitary houses seen here and there, on outbreaks of infectious disease discovered in connection with school work, &c., to the County Medical Officer of Health.

The Local Medical Officers of Health co-operate with the School Medical Officer as to school closure during epidemics, sanitary condition of schools, &c. As regards school closure, notification of this is sent by the Local Medical Officer of Health to the School Medical Officer, who countersigns it; the co-operative point is emphasised by noting that the form used is No. 5 S.C. (not M.I.), which indicates that it is primary a public health, and not a medical inspection form. The form is in duplicate.

The Tuberculosis branch of the general public health work of the county is too young yet to say that much co-operation has taken place, but undoubtedly much will, to the mutual benefit of
both departments. This will take the form of furnishing the Tuberculosis Officer with the names and addresses of all phthisical children in the county, so far as known, whether they have left school or not, together with what facts he may wish to know about the degree of advancement the disease has made in each case.

Further, in regard to both old and newly diagnosed cases of tuberculosis, where there is special need in the opinion of the Medical Inspectors for sanatorium benefit, such cases will, where one of the parents is an insured person under the Act, be brought to the notice of the Tuberculosis Officer for early consideration.

Co-operation with the Attendance Department has been dealt with previously. The departments are in close touch, the School Medical Officer having frequent meetings with the Superintendent Attendance Officer in Carlisle, while the Assistant Medical Officers see a great deal of the District Attendance Officers at the schools.

Lastly, but of great importance, may be mentioned the need for the close co-operation of
the head teachers of the county with the work of Medical Inspection. A study of the preceding pages will have made it clear that without the co-operation of the head teachers, the successful working of the department would be impossible.

INCIDENTAL DUTIES.

Apart from the routine work of the department, which has been described, there occasionally arise other points to attend to as, e.g., dealing with outbreaks of infectious disease in schools. Say, e.g., a case of diphtheria occurs in a school, the School Medical Officer, or one of his Assistants, usually visits the school at once, inquires into the outbreak, swabs the throats of contacts, and reports to the Local Medical Officer of Health.

CHOICE OF EMPLOYMENT ACT.

The School Medical Officer, when asked by the executive officials under this Act, provides, in confidence, such information as to the medical school life of the applicant as may help these officials in deciding on a suitable career for the boy or girl in question.
Form XVIII., M.I.

This is a form issued by the School Medical Officer to Head Teachers and Attendance Officers, containing information about the infectious and contagious diseases commonly met with among school children. Large framed copies were distributed to every school.

Form XLIII., M.I.

A form on which Attendance Officers report monthly any deaths occurring among the school children of their respective districts, stating cause of death, &c.

Form XL., M.I.

A form used for the purpose of an inquiry into the causation and meaning of functional cardiac murmurs in children. The headings are:

School, Initials of Child, Age, Entrant or Leaver, Sex, Recent Illnesses, Diet, Nutrition, Distance from School, Cardiac Murmurs, (M. Syst., P. Syst., T. Syst., A. Syst., B.D.D.), Apex beat (Inter-space, Relation to Nipple), Haemoglobin, Notes on Re-examination, Remarks.
To the Head Teacher of..................................................School.
DEAR SIR (OR MADAM),
I beg to inform you that,
living at.......................................................... has been notified to me as suffering from...
No child should be admitted to school from the same house until authorised by me. (Signed) Medical Officer of Health.
Date.................................................................

DEAR SIR,
.................................................................
.................................................................
.................................................................
(Signed).........................................................
Attendance Officer.
Address...........................................................
Date.................................................................

To:—
DR. MORISON,
School Medical Officer,
CUMBERLAND.
The child...........................................................
has been excluded from......................................School.
* (1) On the ground that his exclusion will prevent the spread of disease.
* (2) On the ground that his uncleanly or verminous condition is detrimental to the other children.
* (3) On the ground that owing to his state of health or mental or physical defects, he is incapable of receiving proper benefit from the instruction in the school.
(Signed).........................................................
Head Teacher.

* Strike out the “grounds” which are not required.

NOTE—This Certificate need not be used when the “Exclusion” is by the School Medical Officer or his Assistant.
Form XLV.

A log-book, in which all important dates on which steps are taken relating to the Medical Inspection of each school, are recorded. The headings are:

- Index No., School, Department, Defect List No.,
- Routine Inspection (Date of Inspection, Defect Notes sent out, Defect Lists sent to Nurses, Report on Visiting received), Second Inspection (with same sub-headings), Subsequent Visits (with same sub-headings), Remarks.

Form XLVI.

A form used for the purpose of an inquiry, which is being conducted into the clinical and other aspects of pulmonary tuberculosis in school children. This inquiry will be continued as a permanent record.

Forms I. - IV., S.C., are forms dealing with School Closure, they are in duplicate.
LIST OF FORMS, SCHEDULES, &c., USED IN CONNECTION WITH THE MEDICAL INSPECTION OF SCHOOL CHILDREN.

FORM 1, M.I. ... First intimation to Head Teacher re Medical Inspection.

FORM 2, M.I. ... Information required as to number of scholars eligible for examination. To accompany Form 1, M.I.

FORM 3, M.I. ... First intimation to Correspondent re Medical Inspection.

FORM 4, M.I. ... Second intimation to Head Teacher fixing date and time of Inspection.

FORM 5, M.I. ... Intimation to parents re Medical Inspection and previous illnesses of child.

FORM 6, M.I. ... Circular to Head Teacher re Filing of Record Cards. (With specimen Record Card attached).

FORM 6a, M.I. ... Specimen Record Card attached to Form 6, M.I.

FORM 7, M.I. ... Second intimation to Correspondent fixing date and time of Medical Inspection.

FORM 9, M.I. ... Schedule to Attendance Officer of children excluded from school for various reasons.

FORM 9a, M.I. ... Office copy of Form 9, M.I.

FORM 9b, M.I. ... Copy to Head Teacher of Form 9, M.I.

FORM 10, M.I. ... Notice from Attendance Officer to School Medical Officer as to return to school of excluded children.

FORM 11, M.I. ... Exclusion Notice to Parents re Verminous condition of child.
FORM 11a, M.I. ... Second Notice to Parents threatening prosecution. (In duplicate).

FORM 12, M.I. ... Exclusion Notice to Parents. (For exclusions other than for dirt).

FORM 13, M.I. ... Instructions for Cleansing Dirty Heads.

FORM 13a, M.I. ... Instructions for Cleansing Dirty Bodies.

FORM 14, M.I. ... For Notes as to Phthisis cases. (For looseleaf ledger).

FORM 15, M.I. ... Defect Notice to Parent.

FORM 16, M.I. ... Notice to Parent re Blepharitis.

FORM 17, M.I. ... Defect Notice to Doctor.

FORM 18, M.I. ... Instructions by School Medical Officer to Teachers and Attendance Officers on Common Infectious and Contagious Diseases of School Children.


FORM 20, M.I. ... Recommendations re above.

FORM 21, M.I. ... Notice by School Medical to District Medical Officers re cases of Pulmonary Tuberculosis. (Public Health (Tuberculosis) Regulations, 1912).

FORM 22, M.I. ... Circular from School Medical Officer to Head Teacher as to accommodation and quietness during progress of Medical Inspection.

FORM 23, M.I. ... Circular from School Medical Officer to Parents re Pre-tuber-cular Condition of Child.
FORM 24, M.I. ... Circular from School Medical Officer to Parents re Strabismus.

FORM 25, M.I. ... Schedule showing Visits paid by School Nurse.

FORM 26, M.I. ... Summary of Verrinous Conditions found at Routine Visits.

FORM 27, M.I. ... Defect List.

FORM 28, M.I. ... Summary Report re Special Visits.

FORM 29, M.I. ... Notice to Head Teacher to return Form 2, M.I.

FORM 30, M.I. ... Notice to Head Teacher requesting delivery of Defect Notices to Parents.

FORM 31, M.I. ... Weight Charts for Pretubercular and Phthisical Children.

FORM 32, M.I. ... Report by School Nurse or Attendance Officer to County Medical Officer of Health re Insanitary Houses. (In duplicate).

FORM 33, M.I. ... Report by County Medical Officer of Health to District Medical Officer of Health re Houses occupied by Dirty Families. (In duplicate).

FORM 34, M.I. ... Instructions to Nurses on Treatment of Blepharitis.

FORM 35, M.I. ... Schedule of Dirty Children found by School Nurse on Special Visits.

FORM 36, M.I. ... Weekly Report by School Nurse to School Medical Officer.

FORM 37a, 37b, 37c, 37d, M.I. Statistical Sheets.
FORM 38, M.I. ... Circular to Parents re Tonsils.
FORM 38a, M.I. ... Prescription re Tonsils.
FORM 39, M.I. ... Report on School Visiting sent in by County Superintendent of Nurses to School Medical Officer.
FORM 40, M.I. ... Special Statistical Form re Heart Weakness to be used by School Medical Officers.
FORM 41, M.I. ... Circular to Parent re Scabies.
FORM 41a, M.I. ... Prescription re Scabies.
FORM 42, M.I. ... Circular to Parents re Impetigo.
FORM 42a, M.I. ... Prescription re Impetigo.
FORM 43, M.I. ... Form for Reporting Deaths of School Children for School Attendance Officers.
FORM 44, M.I. ... Circular to Parents re Second Inspection of Child.
FORM 45, M.I. ... Record Book for Dates of all important steps taken in connection with the routine visit to each school.
FORM 46, M.I. ... Special Statistical Form re Phthisical Children for Inquiry re same.

CIRCULAR 1913  M.I. Instructions to Head Teacher re Filing and Storing of Record Cards.
THE DIAGNOSIS

of

incipient phtisis

in

children.
A distinguished physician not long ago remarked that the diagnosis of early pulmonary tuberculosis "is one of the most difficult problems in medicine." With that dictum few who have had much experience in the matter will be disposed to quarrel, and it may safely be added that the diagnosis is a matter of greater difficulty in children than in adults. Therefore, and because of the great and increasing importance of early diagnosis in tubercular lung lesions no apology is needed for any attempt to contribute to the knowledge of the subject.

There follows an analysis of the physical signs, the symptoms, the individual and family history, &c., in approximately 300 cases of phthisis (mostly incipient) among school children attending the elementary schools in Cumberland, of which 300 cases a careful record has been kept. In Cumberland the attention devoted to affections of the lungs has perhaps exceeded that devoted to any other defect at the medical inspections. The following extract from a previous report briefly indicates the lines along which inquiry on this subject proceeds in Cumberland:
"Medical inspection has established the fact that affections of the lungs are much more common in school children than was previously supposed.

It is evident, of course, that all stages of chest affections are met with, from the perfectly normal lung to that which is definitely affected with tuberculosis.

The proper classification of these is a matter of great difficulty, and the satisfactory placing of each case in its proper class, or the correct interpretation of the physical signs and symptoms met with in these cases, is one of the aspects of medical inspection to which the closest attention must be paid.

The compulsory notification of phthisis has increased in difficulty greatly, for the matter is not now confined to a private talk with the parent or a notification to the family doctor of the opinion of the School Medical Officer, and the idea has, unfortunately, taken some hold of the lay mind that a child notified as suffering from phthisis is as it were 'branded' more or less for life.
The diagnosis of early phthisis is a matter of supreme difficulty, and the Medical Inspector has to exercise the greatest care to avoid the danger on the one hand of being too ready to notify doubtful cases, and, on the other hand, of hesitating on sentimental or other grounds to notify cases as to which little reasonable doubt can be entertained.

There is no doubt that Medical Inspectors, examining, as they do, many thousands of children's chests annually, have an excellent opportunity of becoming experts in the diagnosis of fine shades of difference in lung affections, and especially in that most difficult question, the distinction between the definitely tubercular lung and that which has now come to be known as the pretubercular.

The following classification has been adopted in this county:

(a) DELICATE - Children who are very definitely 'below par' in a general way, often anaemic, sometimes those who have had some recent illness, such as measles, or whooping cough, and have not recovered satisfactorily therefrom.
Children in this condition are, of course, more liable to disease, and although they may have nothing definite in their chests to note, yet they repay the trouble of keeping them under observation.

(b) WEAK CHEST. - Doubtless not a class defensible on scientific grounds, but very expressive of children who besides being delicate have definite chest weaknesses, such for example as those whose parents tell one that they are 'never free from cold.'

This group includes children who a month or two after an attack of say bronchitis or pneumonia, &c., are still coughing, though nothing definite can be made out on examination of the chest. Included also in this class are children who have one or more isolated signs of disease, such as increased vocal resonance or fremitus, or harsh breathing at the apex of one lung.

The evidence in such a case is not sufficient, per se, to presume disease, but the case certainly requires to be kept under observation.

(c) PRE-TUBERCULAR. - Where there is, for example, dullness as well as harsh breathing at one apex, or dullness with prolonged expiration, or with increased resonance, or with diminished expansion, especially if any of these signs are
associated with cough or night sweats, or where the child looks delicate and is poorly nourished, but where a general survey of his case does not seem to justify the diagnosis of a definite tubercular lesion.

(d) PHTHISIS. — Where some of the above symptoms and signs are present to a marked degree, or in such combinations as remove all reasonable doubt, especially when the family history, which is always carefully enquired into, gives corroborative evidence, as for example if one parent 'died of consumption,' or where a brother or sister is 'off school with his lungs,' both typical phrases.

The whole matter resembles the selection of a short leet, as it were, of delicate or weak-chested from among the healthy children, with a further narrowing down to those who are pretubercular, and a final selection of the definitely phthisical, all, however, being kept under careful observation.

It may be added that the diagnosis of pre-tubercular is rarely, and that of phthisis practically, never arrived at until the points of the case have been carefully gone into by both Medical Inspectors acting independently."

The records of approximately 300 cases of phthisis, therefore, being available, a register of which, it is intended, shall be continued as a permanent record of these cases has been prepared. The chief headings in the register are as under:

General (No., Name, Age, Sex, School), Symptoms (Cough, Spit, Haemoptysis, Loss of Weight, Nutrition, Night Sweats, Appetite, Flushing), Site of Disease (Right-lower, Right-middle, Right-upper, Left-lower, Left-upper), Physical Signs (Dullness, 1, 2, 3, Increased V.F., 1, 2, 3, Poor Expansion, Flattening), Breathing (Harsh, Jerky, Expiration +, Vesicular, Broncho-vesicular, Bronchial, Diminished, Cavernous, Amphoric), Increased V.R., 1, 2, 3, Accompaniments (Friction, Rhonchi, Fine Creps, Coarse Creps.), Weight (Above Average, Average, Below Average), Other Evidence of Tuberculosis (Glands, Bones, Joints, Abdomen), Family History (Parents, Brothers and Sisters, Other Relatives), Notes on Re-examinations (within 1 year, 2 years, 3 years, 4 years, 5 years, after 5 years), Treatment, Remarks.

Although 300 cases may seem to be a large number of cases for any one area, and although some might consider such a number as the diagnosis of men who were 'cranks' on the subject, the following critical analysis will shew not only that the percentage is very low, but that it is considerably below the average for England and Wales among school children as given in Sir George Newman's reports. One is confident that the figures are under
rather than overstated, for it must be remembered that in Cumberland there is much bad housing, poor sanitation, damp subsoil and other conditions predisposing to phthisis.

TABLE 1.

Total No. of cases recorded - 296. made up as under:

<table>
<thead>
<tr>
<th></th>
<th>Rural</th>
<th>Urban</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>77</td>
<td>67</td>
</tr>
<tr>
<td>Girls</td>
<td>81</td>
<td>71</td>
</tr>
</tbody>
</table>

There are in the county in the elementary schools somewhere about 29,743 children as under:

<table>
<thead>
<tr>
<th></th>
<th>Rural</th>
<th>Urban</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>7,925</td>
<td>7,675</td>
</tr>
<tr>
<td>Girls</td>
<td>7,634</td>
<td>6,509</td>
</tr>
</tbody>
</table>

Of the 296 cases recorded 53 have left school; if these be classified and deducted from the appropriate groups the percentage distribution of phthisis among the school children of the county is as under:

<table>
<thead>
<tr>
<th></th>
<th>Whole County</th>
<th></th>
<th>Rural</th>
<th>Urban</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Boys)</td>
<td>.3%</td>
<td>(Boys)</td>
<td>.8%</td>
<td>(Boys)</td>
</tr>
<tr>
<td>(Girls)</td>
<td>.7%</td>
<td>(Girls)</td>
<td>.3%</td>
<td>(Girls)</td>
</tr>
</tbody>
</table>
From these figures it is manifest that in the County of Cumberland with its 30,000 school children the phthisis rate is practically uniform among boys and girls and in urban and rural districts, with the exception of the slight increase in urban girls as compared with rural girls.

If, too, the number of cases still in school, viz. 243, be divided by ten, an average allotment of cases will be arrived at for each year’s new entrants into the schools, because the average school life of a child is ten years.

This average for each year is, obviously, 24.3, surely not a very high figure when one remembers that the yearly deaths from phthisis in Cumberland are, roughly, 260, for, as Dr. Dickinson, Tuberculosis Officer for Newcastle, remarks, "If x people die in the city every year (from phthisis), it is reasonable to suppose that a similar number of recognisable cases originate each year." The logic of this seems beyond question and it is therefore reasonable to suppose that, if 260 cases of recognisable phthisis originate each year in Cumberland, 24.3 of these may fairly be expected to originate among the elementary schools of the administrative county, when one remembers that the children
attending these schools include, amongst others, the children of the very poor, and of the "submerged tenth," that is to say, in many cases, children who are habitually under-fed and neglected, and who come from homes where the primary laws of health are unknown or at least disregarded.

It may therefore fairly be assumed, that though the figures which follow are based on a total so large as to be of real value for comparative purposes, yet they are not open to the charge that the diagnosis of phthisis has been made in any reckless or haphazard fashion. Practically every case has had the benefit of the opinions of two of the medical inspectors, many have had the opinion of three, and some of four; the element of "faddism" on any particular point, which may influence figures where the opinion of one man only is taken over a prolonged series of cases may therefore be discounted.
AGE INCIDENCE.

The age incidence of the cases was as follows:

<table>
<thead>
<tr>
<th>Age</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>19</td>
</tr>
<tr>
<td>6</td>
<td>37</td>
</tr>
<tr>
<td>7</td>
<td>38</td>
</tr>
<tr>
<td>8</td>
<td>40</td>
</tr>
<tr>
<td>9</td>
<td>25</td>
</tr>
<tr>
<td>10</td>
<td>31</td>
</tr>
<tr>
<td>11</td>
<td>13</td>
</tr>
<tr>
<td>12</td>
<td>37</td>
</tr>
<tr>
<td>13</td>
<td>34</td>
</tr>
<tr>
<td>14</td>
<td>6</td>
</tr>
<tr>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>Age not stated</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>296</td>
</tr>
</tbody>
</table>

These figures are very striking - they would seem to indicate some relation between the commencement of school life and the incidence of phthisis. At age 3 no cases of phthisis were diagnosed, although what
might be described as a "respectable" number of children were examined at that age, at age 4, by which time a considerable number of children have completed several months, if not a full year, of school life, 5 cases were diagnosed, while, at age 5, 19 cases were diagnosed, and by that time, of course, the children who entered school at 3 and 4 years of age, (who among them represent numbers equal to those of the average of the later years of school life), have completed on the average at least twelve months of school life. By the fifth birthday every child has theoretically entered school and, in practice, most have, so that by the age of 6, when the numbers diagnosed have jumped to 37, every child has had twelve months of school life at least. The incidence for those years of school life during which average numbers of children are examined seems to lie between 34 - 40; for while at ages 9 and 10, the numbers fall much lower, yet one must remember that considerably fewer children are examined at these ages, while at ages 11, 14 and 15, when the incidence falls respectively much lower and very low indeed, respectively much fewer and very few children indeed are examined.

The figures for the earlier years seem to constitute a very serious indictment of the influence
of school life on children predisposed to tuberculosis, for it is very difficult to read any other meaning into them than this,—that those children who have become infected with tuberculosis during infancy or very early childhood as Hamburger contends is frequently the case, but who have been able to resist the attack so long as they are running about in the open air, break down when the time comes for them to spend a large part of each day in stuffy and overcrowded classrooms, with, as is frequently the case, very imperfect ventilation.

Hamburger holds that pulmonary tuberculosis is the tertiary stage of the disease and that the rate of progress from the primary stage, (infection with enlargement of glands), to the tertiary depends on environment. In favour of his contention that infection in very early childhood is much more common than we suppose is the fact that tubercle bacilli have been recovered from under the nails of infants, able only to crawl.

Dr. James Kerr in a paper on this subject some time ago stated his opinion that "Schools generally have no great effect in disseminating tubercle,"
yet in the same paper he quoted Von Pirquet as finding that, out of 693 apparently healthy children, 18% reacted to his test, as under:

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st and 2nd years</td>
<td>2% - 3%</td>
</tr>
<tr>
<td>3rd to 4th</td>
<td>13%</td>
</tr>
<tr>
<td>5th to 6th</td>
<td>17%</td>
</tr>
<tr>
<td>7th to 10th</td>
<td>35%</td>
</tr>
<tr>
<td>Above 11 years</td>
<td>35%</td>
</tr>
</tbody>
</table>

These figures would seem to controvert Dr. Kerr's assertion and incidentally bear rather a curious similarity to the table of age incidence in Cumberland.

**PREVIOUS ILLNESSES.**

Out of the 296 cases there were 77 instances (26%) of previous lung trouble, pneumonia, pleurisy or bronchitis. As in a great many cases the parents were never interviewed at all, and as the memories of parents of the class in question are notoriously fallible, it is certain that the percentage of cases who have previously had some form of more or less serious lung trouble should be very much higher. If one has followed this point at all closely one cannot fail to be impressed with the remarkable proportion
of those cases in which a reliable person is interviewed which shew a history of "congestion," pleurisy, or "brownkittis" by which latter the parent almost invariably means a severe attack of bronchitis of a chronic or recurring type. Experience has taught me to attach the greatest importance to these illnesses as a factor in the development of the tubercular infection.

It is, of course, generally admitted that the majority of pleurisies in early life are tuberculous in nature.

**FAMILY HISTORY.**

In 107 cases a family history of phthisis was obtained as under:

- Parents only. ... ... ... 19.
- Brothers and Sisters only. ... 20.
- Other relatives only. ... 29.
- Parents and Brothers and Sisters. 10.
- Parents and other relatives. ... 9.
- Brothers and Sisters and other relatives. ... 14.
- Parents, Brothers and Sisters and other relatives. ... 6.

107.
In the matter of the influence of heredity on phthisis medical opinion has of recent years changed greatly. It is now generally accepted that the disease itself is not hereditary and that the most that is transmitted from one generation to another is a predisposition; many dispute even the transmission of predisposition and argue with considerable point that in many, if not the majority of cases, there is the influence of direct contact with consumptives and of life in an infected house to account for the spread of the disease to the younger generation quite apart from any hypothetical hereditary influence.

The point to elucidate in inquiring into this question in each case is not whether a relative, father, brother, sister, for example, has or had pulmonary tuberculosis, but whether anyone, relative or not who suffers from consumption is, or has been for any length of time in contact with the case under examination. Dr. Arthur Latham puts the case admirably when he says:—"I do not attach much importance to family history of tuberculosis, ......... I attach importance to a history of exposure to infection." Even a history of exposure to infection is of value only from the positive side, as negative evidence it is valueless or nearly so.
It is curious to note the different attitude taken up by School Medical Officers in relation to the inquiry re family history. Most endeavour to get the fullest possible information before turning to the physical examination. Others however adopt the contrary view – e.g. Dr. Gair Johnstone, School Medical Officer for Kirkcudbrightshire in his last annual report explains that he never inquires into family history until his clinical examination is finished in order to avoid the "possibility of being influenced." There are arguments for and against both attitudes but it certainly seems to me that it is desirable to have all the available facts before one before starting the clinical examination, for obviously in the event of an active exposure to infection minor points assume an increased importance.

WEIGHT AND NUTRITION.

The weights of all pretubercular and phthisical children in the county area are carefully recorded at short intervals; the returns with regard to phthisical children are very striking and are shown in tabular form:-
No. of children whose weights are recorded below - 274.

<table>
<thead>
<tr>
<th>Weight Category</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above average weight</td>
<td>68</td>
<td>24.8%</td>
</tr>
<tr>
<td>Average</td>
<td>30</td>
<td>10.9%</td>
</tr>
<tr>
<td>Below average</td>
<td>176</td>
<td>64.3%</td>
</tr>
</tbody>
</table>

Of those above the average the average amount in excess of the standard was 6.09 lbs.

Of those below the average the average amount below the standard was 7.9 lbs.

The averages were obtained from Tuxford and Glegg's figures for County areas, and the weight in each case compared with the standard weight (according to sex) for that age. We know that in adult cases loss of weight is one of the diagnostic symptoms of phthisis. The number of cases where the parent or other responsible person had observed loss of weight in the 300 or so cases of this inquiry were recorded; the total number reporting loss of weight as an observed symptom was 61 (= 20.6%). Yet the figures above shew that 64.3% had actually a weight more than half a stone below the average. The explanation of the apparent inconsistency may be lack of observation on the part of the parent;
more probably I think the explanation is that these children had been habitually poorly nourished and below par. Dr. Eric Pritchard,\(^5\) I think, coined a better phrase so far as children are concerned when, instead of "loss of weight," he spoke of "failure to put on weight," and even a better phrase would be, I think, "inadequate increase of weight," for physiologically even the phthisical child is automatically increasing in weight year by year.

The whole question of weight is bound up with nutrition and the two ought not to be considered independently. To demonstrate that weight alone is not an infallible guide the fact that 24.8% of the phthisical cases averaged 6 lbs. over the standard may be reiterated and even more instructive is a study of the following table. The following are some cases of more or less advanced phthisis in children, where the weights recorded did not correspond with what one would have expected from the lung condition.
### TABLE IV.

<table>
<thead>
<tr>
<th>Case</th>
<th>Condition</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>R. M.</td>
<td>Extensive phthisis both lungs. (with cavitation).</td>
<td>Average</td>
</tr>
<tr>
<td>C. M.</td>
<td>Advanced phthisis whole of both lungs.</td>
<td>&quot;</td>
</tr>
<tr>
<td>J. S.</td>
<td>Extensive phthisis both lungs.</td>
<td>&quot;</td>
</tr>
<tr>
<td>J. F.</td>
<td>Extensive phthisis both lungs. (Cavity).</td>
<td>1 lb. above average</td>
</tr>
<tr>
<td>W. E.</td>
<td>Cavitation right lung.</td>
<td>5 lbs. &quot; &quot;</td>
</tr>
<tr>
<td>S. J.</td>
<td>Advanced phthisis both lungs.</td>
<td>3 lbs. &quot; &quot;</td>
</tr>
<tr>
<td>B. W.</td>
<td>&quot;</td>
<td>4 lbs. &quot; &quot;</td>
</tr>
<tr>
<td>B. D.</td>
<td>* Extensive phthisis both lungs, cavitation, very poor nutrition, Erb's paralysis.</td>
<td>4 lbs. &quot; &quot;</td>
</tr>
<tr>
<td>J. P.</td>
<td>Cavitation (right apex).</td>
<td>5 lbs. &quot; &quot;</td>
</tr>
<tr>
<td>R. K.</td>
<td>Cavitation (left apex).</td>
<td>7 lbs. &quot; &quot;</td>
</tr>
<tr>
<td>E. E.</td>
<td>Expensive phthisis right lung. (cavitation).</td>
<td>17 lbs. &quot; &quot;</td>
</tr>
<tr>
<td>J. H.</td>
<td>Phthisis both apices. (history of haemoptysis).</td>
<td>18 lbs. &quot; &quot;</td>
</tr>
<tr>
<td>T. N.</td>
<td>* Marked dullness, over whole of both lungs; poor nutrition, Anaemia.</td>
<td>20 lbs. &quot; &quot;</td>
</tr>
<tr>
<td>J. K.</td>
<td>Advanced phthisis whole of left lung.</td>
<td>21 lbs. &quot; &quot;</td>
</tr>
</tbody>
</table>

The cases marked *, particularly the one T. N., emphasise the importance of considering weight and nutrition together and not alone.
The importance of nutrition in diagnosing incipient phthisis especially in children is being more and more realised. The manifestations of impaired nutrition are various:—pallor, anaemia, systolic cardiac bruits, general lassitude and weariness, complaints of being "easily tired," loss of appetite, gastric disturbance, headaches, &c.

Dr. Marion Archibald, Ilkeston,\(^6\) says:—

"Children are not as a rule brought because they are thought to be consumptive ............. many are brought on account of loss of appetite, headaches, lassitude and general 'going off.'"

Dr. Wade, Monmouthshire,\(^7\) published a report in which he demonstrated the intimate relationship between phthisis and malnutrition in childhood.

In the series of cases under review the following was the state of affairs:—

**Table V.**

<table>
<thead>
<tr>
<th>Classification</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classified definitely as of poor or very poor nutrition</td>
<td>91</td>
<td>30.8%</td>
</tr>
<tr>
<td>Poor appetite</td>
<td>36</td>
<td>12.2%</td>
</tr>
<tr>
<td>Anaemic</td>
<td>22</td>
<td>7.4%</td>
</tr>
<tr>
<td>Systolic cardiac murmurs other than those classed as anaemic</td>
<td>10</td>
<td>3.4%</td>
</tr>
<tr>
<td>Languid and easily tired</td>
<td>19</td>
<td>7.8%</td>
</tr>
</tbody>
</table>
With regard to some of these figures there may be some overlapping but on the other hand in many cases it was impossible to get facts as to appetite, lassitude, &c. On the whole it is safe to say that at least 40% gave evidence of impaired nutrition in one or other of its manifestations.

Impaired nutrition may be either a cause, i.e. a predisposing cause, or a result of incipient phthisis. It is highly probable that defective nutrition is the first visible sign of the tubercular infection, the evidence of the circulation of the tubercular toxin, before any clinical manifestations recognisable as such are evident in the lungs.

Dr. Jordan claims that pulmonary tuberculosis is "primarily a hilus disease in most cases and that it spreads from there along the bronchi and bronchioles and develops fastest at the apex, which is therefore apparently clinically the site of the onset." Many others, perhaps most authorities nowadays, supported by evidence from the post mortem table, agree with him that in the majority of cases the primary site of lesion in the lung is the broncho-tracheal and peribronchial glands too deep to be clinically recognisable except for certain minor phenomena which will be detailed later.
Dr. D. M. Taylor mentions amongst other symptoms seen in pretubercular children periodical attacks of, amongst other things:

(1) Loss of appetite, gastric disturbance, or actual vomiting.
(2) Fatigue on slight exertion.

He thinks that in these cases the symptoms are due to the activity of the lesions, probably miliary foci, and that they resemble somewhat the reaction to tuberculin.

Dr. Pritchard says "General lassitude, poor morning appetite, buoyancy of spirits alternating with periods of depression are all in favour of tuberculous."

Assuredly the state of the nutrition of the child, in all its aspects, is one of the points calling for special attention in the diagnosis of incipient phthisis.

**NIGHT SWEATS.**

In 165 cases (55.8%) a history of night sweating was obtained; no doubt, had it been possible to interview parents in all cases a much higher percentage would have been recorded.

The value of the above figures for diagnostic purposes is very doubtful. There is no doubt that in many cases the parents gave an affirmative answer to a
question on this subject without much justification
for doing so, many even gave such an answer even although
they sleep in separate rooms and rarely see the children
in bed. It must be remembered too that children
perspire more freely and readily than adults and that
in many cases perspiration at night may have no
pathological significance in children, or may mean at
most a slight chill or a disordered stomach. Further,
in many cases, three, four, or more children sleep in
one small room, with shut windows and often with far
too many body and bed clothes. For example I saw a
case recently of a child who wore the following:—thick
suit of under flannels, thick flannel shirt lined with
red flannel, waistcoat thickly padded and lined with
flannel and rabbits' fur, and coat; the parent, who
admitted that he practically wore the same clothes in
bed "for fear of cold," said that he perspired freely,
which I should scarcely venture to doubt. This is an
exaggerated case, but serves to emphasise what I mean
that the history of night sweats must be carefully
analysed. I attach great importance to a history of
heavy night sweats, where for example the mother says
that the child "sweats something awful" or is "wringing
wet every night" and so on. It is especially significant
when the sweats are described as "cold," "clammy" &c. on the forehead or scalp. Dr. Pritchard remarks that "Speaking generally the older the child the greater is the significance of sweating." In 30 cases (10.2%) a history of heavy night sweats was obtained.

**COUGH.**

In 134 cases (45.3%) the child was stated to be troubled with a cough. The value of a cough as a diagnostic symptom is, like sweating, somewhat empirical. Parents have the haziest ideas as to duration, greatest diurnal incidence (morning, evening, night &c.) and type of cough in many cases. Many parents who at once answer the query as to the presence of a cough in the affirmative on being "cross examined" as to duration will tell you "since last Friday," "may-be a week" and so on, and admit that a cold has intervened to account for it, although they know perfectly well that it is persistent coughing one is on the look-out for. It cannot be over-emphasised that in this as in other symptoms parents, often through sheer stupidity or carelessness mislead one, doubtless not wilfully but very emphatically nevertheless. One finds that in work
of this kind questions which avoid all possibility of ambiguity in the answer are essential if the information obtained is to be of value. The length of time for which a cough can persist without being regarded with suspicion naturally is a matter of opinion and varies considerably. I have lately read the report of one School Medical Officer who regards with suspicion a cough lasting for more than three weeks. Personally I think that is much too short a limit to set. On the other hand when one finds a cough, especially in summer, which has persisted for several months there is little doubt that very grave suspicion must attach to the symptom.

Perhaps more important than the duration is the type of cough, a short dry "hacking" cough being vastly more important than a heavy cough with profuse sputum frequently indicating a chronic bronchial catarrh, a by no means rare condition in children at least in a damp climate like Cumberland. The parent frequently describes the type of short cough with no sputum by saying "It seems to come from her throat" or "I thought it was just a habit," and I feel sure that this type of short sharp cough with gradual onset is the type which one has to be on the look out for in phthisis which is incipient. The explanation of this "hollow spasmodic cough without expectoration or obvious cause"
as Pritchard⁵ points out is probably the irritation of a tubercular adenitis in the mediastinum.

It is a curious point though it may be merely a coincidence that the incidence of cough and night sweating has been in Cumberland much higher in urban than in rural areas as the following table shews:

<table>
<thead>
<tr>
<th></th>
<th>Cough</th>
<th>Night Sweats</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban</td>
<td>78 (49.4%)</td>
<td>106 (67.1%)</td>
</tr>
<tr>
<td>Rural</td>
<td>56 (40.5%)</td>
<td>59 (42.7%)</td>
</tr>
</tbody>
</table>

**SPUTUM.**

It is comparatively rare for a child with incipient phthisis to have a "spit." In this series of cases 41 or (13.9%) gave a history of this. Bacteriological examination has proved that the sputum even of children diagnosed as incipient phthisis cases is rarely of value for diagnosis. The sputum is usually so scanty that it is frequently saliva and not sputum that is brought up for examination. It is recommended by some to make the child cough and then to swab the back of the throat and examine the smear. The results of all such examinations are usually negative and they are therefore of little or no value.
Dr. Wade in Monmouthshire examined, in 1911, 27 sputa from cases of incipient phthisis in children and found them all negative. Dr. Marion Archibald in Ilkeston, in 1911, had two such cases with sputa; one of these had been bacteriologically examined and was found to be positive.

Haemoptysis is a rare symptom and only occurred in 2 (0.7%) cases.

EVIDENCE OF FEVER.

In 23 cases (7.8%) there was evidence of febrile disturbance. This was determined mainly by the somewhat crude and unreliable method of a history of flushing, especially in the late afternoon or evening. The evidence of the thermometer of course would be immeasurably more valuable in this matter and the establishment of dispensaries will soon make possible a thorough investigation into the value of this symptom in the diagnosis of early phthisis - in more advanced cases its significance is a truism. Dr. Taylor in the paper referred to before gives one of the symptoms of miliary foci operating in pretubercular cases as temperatures rising to 100° or more in the late afternoon.
OTHER EVIDENCE OF TUBERCULOSIS.

Other evidence of tuberculosis, i.e., other than pulmonary, were found as under:

TABLE VII.

Tuberculosis of glands. 16 cases. (5.4%)
" " bones. 3 " (1%)
" " joints. 9 " (3%)
" " abdomen.

Tabes mesenterica, )
tubercular diarrhoea, &c.) 9 " (3%)

So far as evidence of tuberculosis in bones, joints and the abdomen are concerned little comment is necessary. Dr. Marion Archibald found 9 cases out of 35 to be suffering from tubercular peritonitis. Undoubtedly post-mortem and clinical evidence alike would lead one to expect a higher percentage of abdomen infections in tubercular children than 3%, but the conditions of school medical inspection work do not facilitate this particular line of investigation. Many parents bring up their children for consultation about attacks of more or less chronic diarrhoea and that these are frequently tubercular is hardly open to question.
So far as the glands are concerned the percentage is also low, but the percentage does not represent the figures for enlarged glands, but for glands which were indisputably tubercular. It is in my experience an unusual thing to find glands of this type in children who have tuberculosis of the lung. The significance of a slight or moderate enlargement of the glands in children with suspected or incipient phthisis is doubtful. Dr. Gair Johnstone in his report for Kirkcudbrightshire for 1912-13 says:—"Distinct enlargement of the cervical glands was found in 90.7% of the children judged to be tubercular. This close connection between the glandular enlargement in the cervical and supra-clavicular triangles and the presence of abnormal signs in the lungs is so obvious that it is difficult to avoid associating them as cause and effect."

With this close association of glandular enlargement in the neck with the pulmonary condition one feels it difficult to agree. In the first place each observer has his own standard of what glandular enlargement means, and as Dr. Johnstone himself says referring to children in general:—"Practically every child has one or two enlarged glands in the neck."
In the second place so many tubercular children have
decayed teeth and other conditions which, excluding
tubercular infection, could account for some extent
of glandular enlargement that the value of the same
for diagnosis is very hypothetical. Dr. Pritchard\textsuperscript{5}
emphasises the importance of glandular enlargement
in the axilla without apparent cause. He gives the
following symptoms as indicative of tubercular adenitis
in the mediastinum.

(1) Hollow spasmodic cough without expectoration
or apparent cause.

(2) Impaired resonance, especially at the second
right intercostal space and between the
scapulae.

(3) Enlarged superficial veins on upper 1/3rd
of the chest especially when unilateral
and on the right side.

(4) Inspiratory stridor, due to pressure on
the trachea.

(5) Defective air entry due to pressure on a
bronchus.
The Condition in the Lung.

Site of the Lesion.

In 1880 Sir James Kingston Fowler stated that the primary focus is usually 1 - 1\(\frac{3}{4}\)" below the extreme apex. The question as to which part of the lung is most commonly the site of the tubercular invasion is naturally a subject which has been widely discussed. Reference has already been made to the fact that we may have to distinguish between the primary focus (possibly in the glands at the root of the lung) and the primary focus clinically recognisable at the apex or some other part of the lung. In discussing the site of the earliest lesion one is obviously referring to the latter of these. Most observers find that the right apex is the commonest site of invasion; for example Dr. Pritchard\(^5\) gives the following figures for a group of children examined by him:

- Right apex - 55%.
- Left apex - 27%.
- Both lungs - 18%.

Dr. Marion Archibald\(^6\) found the right apex affected in 21 cases out of 35.

On the other hand Dr. Wads\(^7\) in a series of 24 localised cases found that 12 "had their site of disease in the right lower lobe." He gives as a possible explanation of this the fact that "the main
stem of the right bronchus passes directly into
the lower lobe," whereas the branches to the
other lobes of the right lung are given off at
an angle. The right bronchus is wider than the
left and "deviates less from the mid-line than does
the left." He argues therefore along the path
of least resistance.

The reasons advanced by those who believe
that the apex is usually the primary seat of
infection are the comparative quiescence and
imperfect expansion relatively of that part of the
lung especially in children. The argument is
not very convincing when one remembers that the
treatment of tubercular lesions elsewhere in the
body is largely by immobilisation and that even in
the lung immobilisation following the production of
artificial pneumo-thorax has proved very successful

In this series 287 cases were localised as
follows:-
### TABLE VIII.

<table>
<thead>
<tr>
<th>Description</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right apex only</td>
<td>38</td>
<td>13.8%</td>
</tr>
<tr>
<td>Left apex only</td>
<td>13</td>
<td>4.5%</td>
</tr>
<tr>
<td>Both apices</td>
<td>169</td>
<td>58.8%</td>
</tr>
<tr>
<td>Both apices and left lower lobe</td>
<td>11</td>
<td>3.8%</td>
</tr>
<tr>
<td>Both apices and right middle lobe</td>
<td>11</td>
<td>3.8%</td>
</tr>
<tr>
<td>Both apices, right middle and left lower lobes</td>
<td>17</td>
<td>5.9%</td>
</tr>
<tr>
<td>Both apices and right lower lobe</td>
<td>1</td>
<td>0.3%</td>
</tr>
<tr>
<td>Left apex and all the lobes of the right lung</td>
<td>3</td>
<td>1%</td>
</tr>
<tr>
<td>Left apex and right middle lobe</td>
<td>1</td>
<td>0.3%</td>
</tr>
<tr>
<td>Right upper and right middle lobes</td>
<td>3</td>
<td>1%</td>
</tr>
<tr>
<td>Right middle lobe only</td>
<td>1</td>
<td>0.3%</td>
</tr>
<tr>
<td>Right middle and both lobes of the left lung</td>
<td>1</td>
<td>0.3%</td>
</tr>
<tr>
<td>Right lung all lobes</td>
<td>3</td>
<td>1%</td>
</tr>
<tr>
<td>Left lung both lobes</td>
<td>3</td>
<td>1%</td>
</tr>
<tr>
<td>Both lungs all lobes affected</td>
<td>12</td>
<td>4.2%</td>
</tr>
</tbody>
</table>

From the above table two facts are clear, that is:

1. In only one case (0.3%) was neither apex involved.

2. The apices of both lungs were affected, (with or without some other part of one or other lung) in 224 cases (78%).
It is obvious that in cases where both apices are involved one may be more affected than the other - the figures showing the relative frequency are under:

Cases in which the disease at the right apex was more advanced than at the left. ... 36 (16%).

Cases in which the disease at the left apex was more advanced than at the right. ... 2 (.9%)

It is therefore manifest in this series of cases, that, where one apex only was involved, the right apex was involved in three times as many cases as the left, and further that, where (both apices being involved), there was any marked difference in the degree of advancement of the disease as between the apices the right apex showed a more extensive lesion than the left in nearly every case.

It may seem rather incongruous to give several lobes, or even all the lobes of both lungs, (as is done in several cases), as the primary focus, but it must be remembered that these cases are taken from a very wide county area, where children may often be examined only at long or comparatively long intervals, and these localisations represent the condition when the diagnosis was made - and of course in many cases the disease has passed the strictly incipient stage before the children are brought for examination.
In some cases the clinical manifestations are only recognisable from the front or from the back of the apex as the case may be, thus in this series the lesion was only clinically demonstrable from the fronts of the apices as under:-

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Both apices</td>
<td>14 cases</td>
<td></td>
</tr>
<tr>
<td>Right apex</td>
<td>27 &quot;</td>
<td></td>
</tr>
<tr>
<td>Left apex</td>
<td>14 &quot;</td>
<td></td>
</tr>
</tbody>
</table>

and from the backs of the apices as under:-

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Right apex</td>
<td>1 case</td>
<td></td>
</tr>
<tr>
<td>Left apex</td>
<td>2 cases</td>
<td></td>
</tr>
</tbody>
</table>

It is therefore apparent that the lesion may in many cases be clinically demonstrable from the front of the apex before it is demonstrable from the back.

**DULLNESS.**

Dullness on percussion over the affected part was found as under:-

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Very slight dullness</td>
<td>70 cases</td>
<td>(23.6%)</td>
</tr>
<tr>
<td>Moderate</td>
<td>121 &quot;</td>
<td>(40.9%)</td>
</tr>
<tr>
<td>Marked</td>
<td>91 &quot;</td>
<td>(30.8%)</td>
</tr>
</tbody>
</table>

Thus in 282 cases out of 296 or 95.3% dullness greater or less was a symptom. Unquestionably the presence or absence of dullness is a factor of the
very first importance in the diagnosis of early phthisis. Some observers say that dullness can be demonstrated in every case of incipient phthisis. Dr. Lees in a recent notable communication went further and claimed that dullness is not only demonstrable in every case, but is demonstrable before any other clinical evidence, by e.g. the stethoscope, is forthcoming. He pointed out certain areas as the common sites of these patches of very early dullness.

Most observers emphasise only the importance of light percussion, personally I have found that both light and heavy percussion have a place in demonstrating dullness in the lung. We use both light and heavy percussion for other organs and neither of these alone will tell us the whole story - why not use both for the inquiry into lung conditions? Consider for a moment the depth of the lung and, especially if one admits the probable or possible spread of the lesions from the hilus to the surface, one is forced to admit that many lesions may lie so deep that light percussion would tell one nothing, where heavier percussion might, acting not only through the sense of hearing in the alteration of note, but also and perhaps chiefly through
the muscular sense telling of resistance in excess of what is normal. I am satisfied that no lung has been fully examined on which both light and heavy percussion have not been used. Of course at the apex the lung is shallower and light percussion alone may suffice. In children of course percussion above the clavicle is of doubtful value, owing apparently to varying degrees of expansion (other than pathological) of that part of the lung in the child. Whether light or heavy percussion be employed it is most important to have the finger of the left hand pressed firmly against the chest wall.

Dullness is most frequently demonstrable at some point or other of the 1st 2nd or 3rd interspaces in front and between the scapulae at the level of the bases of the scapular spines behind.

It is a curious point that an impairment of note is often demonstrable in the second right intercostal space about $1\frac{1}{2} - 2$ fingerbreadths from the sternum, and similarly in the 3rd and 4th left intercostal spaces near the anterior axillary margin, in children who appear to be absolutely healthy. What the meaning of these areas of dullness in such cases is not clear.
It may here be added that Dr. Lees pointed out that tenderness over the site of a suspected lesion might be regarded as a confirmatory symptom.

**VOCAL RESONANCE AND VOCAL FREMITUS.**

Both vocal resonance and vocal fremitus are commonly increased as the following table will show:

<table>
<thead>
<tr>
<th>Vocal Fremitus</th>
<th>Vocal Resonance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slight increase. 101 cases. (34.1%)</td>
<td>45 cases. (15.2%)</td>
</tr>
<tr>
<td>Marked &quot; 53 &quot; (17.9%)</td>
<td>165 &quot; (55.3%)</td>
</tr>
<tr>
<td>Very marked &quot; 8 &quot; (2.7%)</td>
<td>54 &quot; (18.3%)</td>
</tr>
</tbody>
</table>

It is apparent that increase of vocal resonance is a more constant feature and is present in a more marked degree than increase of vocal fremitus in cases of early phthisis.

Physiologically of course, from anatomical differences, there is increased vocal resonance and fremitus in the right upper lobe as compared with the left. Allowance has always to be made for this and also for the fact that in many children who have very thin chest walls a certain increase of resonance and fremitus may have no pathological significance.
In the preceding table among the 18.3% classified as very marked increase of resonance were a number of cases in which bronchophony and whispering pectoriloquy were easily demonstrable.

Riviere\(^{12}\) points out that marked increase of vocal fremitus indicates in most cases an extensive consolidation.

Vocal resonance was diminished in one case and vocal fremitus in one case.

**DIMINISHED EXPANSION AND FLATTENING.**

Diminished expansion was present in 158 cases (53.4%). Flattening was present in 116 cases (39.2%). Flattening may be seen either as a more or less generalised condition over one or more lobes or may be confined to a comparatively small area; in the latter case it is most frequently to be seen immediately below the clavicle and towards the outer rather than the inner end. Some observers have called attention to depressions above the clavicle as a symptom in children as well as in adults, but if any considerable number of healthy children be examined for this point it will be found that in a considerable proportion of these children, (presenting no other symptom of lung trouble),
supra-clavicular depressions are present. Their presence may probably be accounted for on the same basis as was referred to when discussing dullness.

CHARACTER OF BREATH SOUNDS.

Nearly every observer records "inequality of the breath sounds" between corresponding parts of the two lungs as one of the earliest symptoms of pulmonary tuberculosis. The explanation is probably defective entry of air into the affected part of the affected lung due to pressure on the bronchus or bronchiole by enlarged tubercular glands in the neighbourhood. In estimating this equality due regard must be paid to the physiological differences between the breath sounds in the upper lobes of the two lungs, probably due, as Taylor points out, to anatomical differences.

No definite figures can be given as to the frequency with which this condition occurred in the series of cases under consideration, but this may be said that it was found much less frequently than might have been expected from the figures of other observers. The explanation is probably to be found in Dr. Gair Johnstone's remark that "Inequality in the breath sounds is often succeeded by definite
Bronchial breathing. Bronchial breathing was found in the great majority of the cases under review and having regard to what has been said before as to the impossibility of avoiding comparatively long intervals between examinations in wide rural areas it is probable that the explanation may be that the duration of the period of inequality is comparatively short and that it soon passes from that to the period of bronchial breathing which may apparently last almost indefinitely. In cases remaining more or less "in statu quo" or where the progress of the disease is very gradual.

Other types of breath sounds of comparatively rare occurrence were as under:

1. Simple harshness of breathing. 27 cases. (9.1%)
2. Tubular breathing. 21 " (7.1%)
3. Prolonged expiration. 45 " (15.2%)
4. Jerky inspiration. 7 " (2.4%)
5. Broncho vesicular breathing. 46 " (15.5%)
6. Cavernous. 3 " (1%)
7. Amphoric. 7 " (2.4%)

It is of course very difficult if not almost impossible to express the types of breath sounds in figures with any accuracy as the breath sounds may vary so much in a small area. The above table is intended to
represent roughly the type of breath sounds predominating in the affected area.

In only 6 cases (2%) was there no alteration in the breath sounds. In this connection it may be recalled that Grancher expressed the opinion that any permanent change in the character of the breath sounds indicated a tubercular lesion in the lungs or bronchial glands.

**PRESENCE OF ACCOMPANIMENTS.**

Accompaniments to the breath sounds were found as under:

<table>
<thead>
<tr>
<th>Accompaniment</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rhonchi</td>
<td>59</td>
<td>19.9%</td>
</tr>
<tr>
<td>Fine crepitations</td>
<td>71</td>
<td>24%</td>
</tr>
<tr>
<td>Coarse crepitations</td>
<td>32</td>
<td>10.8%</td>
</tr>
<tr>
<td>Friction</td>
<td>5</td>
<td>1.7%</td>
</tr>
</tbody>
</table>

It is of course almost superfluous to say that many of the cases in which accompaniments occur are due to supervening cold. It is difficult and almost impossible to arrive at an accurate estimate of the importance of accompaniments where frequent and regular examinations cannot be undertaken. It may be said however that coarse crepitations are of little importance in incipient phthisis,
they may practically be disregarded; rhonchi too are usually associated with a passing cold. On the other hand friction is of great importance, (acute illness being excluded), as it is generally accepted that pleurisy of a chronic or semi-chronic type in children are almost invariably tubercular. Fine crepitations present the chief difficulty; they are frequently due to a cold, but on the other hand if persistent they are almost certainly an indication of a tubercular lesion and if localized they are very suspicious at any time, especially if localized to one apex. In general of course it may be said with equal truth of all accompaniments that the more localized the more suspicious they are.

Dr. Latham remarks:— "The physical sign to which I attach most importance is the persistent presence of crepitations at the apices of the upper lobes." He emphasises specially the importance of examining the backs of the apices for persistent and especially "post-tussic" crepitations which he describes as "the most valuable physical sign we have of an early tubercular focus."

Of the five cases of friction recorded in the above table, the localisation of three was stated as under:—

<table>
<thead>
<tr>
<th>Base of right lung</th>
<th>1.</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot; left &quot;</td>
<td>1.</td>
</tr>
<tr>
<td>Right axilla</td>
<td>1.</td>
</tr>
</tbody>
</table>
RE-EXAMINATION.

At varying periods after the primary diagnosis, but all within two years thereafter 214 re-examinations have been made. Every effort is made to see all phthisical (and pretubercular) children whenever a school is visited, but many things make this ideal difficult, for besides the ordinary changes among all children of leaving school, emigration, changing from one school to another, phthisical children are particularly liable to be missed because of exclusion from school, visits to other places for the benefit of their health, and because, being delicate, they are liable to be kept from school on stormy days, or when "off colour," &c.

The results of these re-examinations have been very carefully classified according to age, sex, and geographical distribution, in order to find out what class of cases shew most tendency to spontaneous improvement and overthrow of the tubercular infection, it being felt that valuable information might be obtained therefrom as to what class of children it is specially desirable to have treated in open air schools, (assuming that there will not be room for all as unfortunately in most educational areas will for a time at least be the case), and what class of cases may be
left more or less to work out their own salvation on hygienic lines at home. The words "spontaneous improvement" have been used because hitherto very few phthisical children have received specialised treatment in the county; a few have had tuberculin, fewer have been in sanatoria, but generally treatment has been confined to advice to the parents as to the benefits of open windows, suitable food and so on.

**TABLE XI.**

<table>
<thead>
<tr>
<th>Sex distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Boys. 99.</td>
</tr>
<tr>
<td>Girls. 115.</td>
</tr>
</tbody>
</table>

These figures would seem to justify the comment that girls have considerably more tendency to spontaneous improvement than boys.
### TABLE XII.

**Age Distribution.**

<table>
<thead>
<tr>
<th>Age</th>
<th>No. Re-examined</th>
<th>Improved</th>
<th>In statu quo</th>
<th>Worse</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>5</td>
<td>2 (40%)</td>
<td>1 (20%)</td>
<td>2 (40%)</td>
</tr>
<tr>
<td>5</td>
<td>18</td>
<td>9 (50%)</td>
<td>5 (27.8%)</td>
<td>4 (22.2%)</td>
</tr>
<tr>
<td>6</td>
<td>32</td>
<td>11 (34.4%)</td>
<td>12 (37.5%)</td>
<td>9 (28.1%)</td>
</tr>
<tr>
<td>7</td>
<td>22</td>
<td>10 (45.6%)</td>
<td>7 (31.6%)</td>
<td>5 (22.8%)</td>
</tr>
<tr>
<td>8</td>
<td>56</td>
<td>16 (44.4%)</td>
<td>11 (30.8%)</td>
<td>9 (25%)</td>
</tr>
<tr>
<td>9</td>
<td>19</td>
<td>9 (47.4%)</td>
<td>5 (26.3%)</td>
<td>5 (26.3%)</td>
</tr>
<tr>
<td>10</td>
<td>31</td>
<td>17 (54.8%)</td>
<td>11 (35.5%)</td>
<td>3 (9.7%)</td>
</tr>
<tr>
<td>11</td>
<td>15</td>
<td>5 (33.3%)</td>
<td>2 (13.3%)</td>
<td>8 (53.2%)</td>
</tr>
<tr>
<td>12</td>
<td>18</td>
<td>11 (61.2%)</td>
<td>5 (27.7%)</td>
<td>2 (11.1%)</td>
</tr>
<tr>
<td>13</td>
<td>8</td>
<td>5 (62.5%)</td>
<td>1 (12.5%)</td>
<td>2 (25%)</td>
</tr>
<tr>
<td>14</td>
<td>2</td>
<td>1 (50%)</td>
<td>-</td>
<td>1 (50%)</td>
</tr>
<tr>
<td>Age not specified</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The numbers for each age group are not large enough to allow one to dogmatise but in a general way it may be remarked that, excluding the eleven year old group, the tendency to spontaneous improvement seems to increase from age 6 onwards.
TABLE XIII.

Geographical Distribution.

<table>
<thead>
<tr>
<th></th>
<th>No. Exam'd</th>
<th>Improved</th>
<th>Much Imp.</th>
<th>In statu quo</th>
<th>Worse</th>
<th>Much Worse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural areas</td>
<td>83</td>
<td>38(45.8%)</td>
<td>10(12%)</td>
<td>21(25.3%)</td>
<td>13(15.7%)</td>
<td>1(1.2%)</td>
</tr>
<tr>
<td>Urban areas</td>
<td>131</td>
<td>44(33.8%)</td>
<td>8(6.1%)</td>
<td>40(30.5%)</td>
<td>36(27.5%)</td>
<td>3(2.3%)</td>
</tr>
</tbody>
</table>

or combined

<table>
<thead>
<tr>
<th></th>
<th>No. Exam'd</th>
<th>Improved (including Much Imp.)</th>
<th>In statu quo</th>
<th>Worse (including Much Worse)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural areas</td>
<td>83</td>
<td>48 (57.8%)</td>
<td>21 (25.3%)</td>
<td>14 (16.9%)</td>
</tr>
<tr>
<td>Urban areas</td>
<td>131</td>
<td>52 (39.7%)</td>
<td>40 (30.5%)</td>
<td>39 (29.8%)</td>
</tr>
</tbody>
</table>

This table makes it abundantly clear that spontaneous improvement is very much more common among children in rural than in urban areas and, conversely, that the disease advances more quickly in urban children. One would of course expect this, but the figures covering so large a number of cases are very striking. They are the more striking when one remembers that more parents of phthisical children have received advice in urban than in rural areas and therefore presumably more has been done by the use of cod-liver oil and various tonics as well as by attention to personal hygiene and open windows to aid the urban children in their struggle for health than has been done for children in rural areas.
It is too almost impossible in crowded urban areas to keep in touch with all the children who belong to the 'migratory' population and lately one has come across the notification of several deaths of children from tuberculosis, and across several cases of advanced phthisis in children not attending school who were not known of when these tables were compiled; all these children were in urban areas and it is therefore certain that the foregoing tables understate rather than overstate the detrimental influence of town life on children suffering from incipient phthisis.

There are many of us who think that the effort to eradicate tuberculosis from among us has begun at the wrong end - that the stable is being looked after the horse is stolen. Certainly many areas have made and are making elaborate provision for the treatment of adult cases of phthisis in all stages without making adequate provision for the treatment of those cases of phthisis which from the point of view of those who look ahead seem most likely to repay treatment, many cases of incipient and threatened phthisis in childhood. Those, and unfortunately they are many, who demur at the expense and question the utility of open-air schools should find food for thought in these figures.
It may be merely a coincidence but it is curious that in rural areas those classified as "much improved" were of a much younger age than those "much improved" in urban areas as under:

<table>
<thead>
<tr>
<th>No. Classified as &quot;Much Improved.&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Urban.</strong></td>
</tr>
<tr>
<td>8</td>
</tr>
<tr>
<td>of whom there were</td>
</tr>
<tr>
<td>2 age 9 years.</td>
</tr>
<tr>
<td>4 &quot; 10 &quot;</td>
</tr>
<tr>
<td>1 &quot; 12 &quot;</td>
</tr>
<tr>
<td>1 &quot; 14 &quot;</td>
</tr>
<tr>
<td><strong>Rural.</strong></td>
</tr>
<tr>
<td>10</td>
</tr>
<tr>
<td>of whom there were</td>
</tr>
<tr>
<td>1 age 4 years.</td>
</tr>
<tr>
<td>1 &quot; 5 &quot;</td>
</tr>
<tr>
<td>3 &quot; 6 &quot;</td>
</tr>
<tr>
<td>2 &quot; 7 &quot;</td>
</tr>
<tr>
<td>1 &quot; 8 &quot;</td>
</tr>
<tr>
<td>1 &quot; 10 &quot;</td>
</tr>
<tr>
<td>1 &quot; 11 &quot;</td>
</tr>
</tbody>
</table>
CAVITATION.

It has been previously noted that a certain number of more or less advanced cases have been under observation; of these at least three have since died and several are dying. In all definite evidence of cavitation was obtained in 25 cases and in 6 cases cavitation was suspected. The localisation was as under:

- Right apex front ... 3 cases.
  - " " back ... 14 "
- Left apex. ... 4 "
- Elsewhere. ... 10 "
  31 "

Of these three were dry cavities.

EVIDENCE OF HEALED PHTHISIS.

Evidence of fibroid phthisis was obtained in 7 cases, in one of which shrinking had been so marked as to cause displacement of other organs.

VARIOUS POINTS.

One case of suspected pneumothorax was observed.
One case of thickened pleura was observed.
In one case the lung trouble dated from the lodgement of a plum stone in the right lung two years previously.
In conclusion it may be remarked that while most of the points on which the diagnosis of incipient phthisis depends have been dealt with in these notes, they do not exhaust the sources of information. Thus the question of the pulse rate where regular observations can be taken is of value, so too is hoarseness, of which three cases were observed in this series. The use of tuberculin and of the x-rays for diagnosis is, however valuable, practically an impossibility under existing conditions in this county.

The importance of early diagnosis is paramount, but so great are the difficulties of accurate diagnosis that no evidence, however important it may appear, can safely be disregarded, and each individual case must be considered on its own merits and from all aspects; we must as Dr. Latham says:—"Weigh the evidence from every possible source."
TABLE XIV.
The following table is a list of associated conditions observed during this inquiry:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organic heart disease</td>
<td>11</td>
</tr>
<tr>
<td>Dyspnoea (no heart lesion)</td>
<td>1</td>
</tr>
<tr>
<td>Kidney disease</td>
<td>1</td>
</tr>
<tr>
<td>Otorrhea</td>
<td>1</td>
</tr>
<tr>
<td>Enlarged tonsils</td>
<td>7</td>
</tr>
<tr>
<td>Adenoids</td>
<td>3</td>
</tr>
<tr>
<td>Oral sepsis</td>
<td>5</td>
</tr>
<tr>
<td>Deformed chest</td>
<td>3</td>
</tr>
<tr>
<td>Infantile paralysis</td>
<td>1</td>
</tr>
<tr>
<td>Chorea</td>
<td>1</td>
</tr>
<tr>
<td>Epilepsy</td>
<td>5</td>
</tr>
<tr>
<td>'Weakness of legs.'</td>
<td>1</td>
</tr>
<tr>
<td>Erb's Paralysis</td>
<td>1</td>
</tr>
<tr>
<td>Nocturnal enuresis</td>
<td>2</td>
</tr>
<tr>
<td>Congenital syphilis</td>
<td>1</td>
</tr>
<tr>
<td>Epistaxis</td>
<td>1</td>
</tr>
<tr>
<td>Worms</td>
<td>2</td>
</tr>
<tr>
<td>Gastric Catarrh.</td>
<td>1</td>
</tr>
<tr>
<td>Jaundice (recurrent)</td>
<td>1</td>
</tr>
<tr>
<td>History of persistent vomiting</td>
<td>5</td>
</tr>
</tbody>
</table>
GENERAL SUMMARY OF CONCLUSIONS.

1. That the commencement of school life has a prejudicial effect on children predisposed to phthisis.

2. That a history of pneumonia, pleurisy or other lung affection is of very frequent occurrence and to be regarded with suspicion.

3. That a history of direct exposure to infection is more important than a family history of phthisis.

4. That inadequate increase of weight is very suspicious and that weight and nutrition should not be considered independently.

5. That defective nutrition is probably the earliest indication of a tubercular infection, before any recognisable physical signs are present.

6. That night sweating is only significant when the sweats are heavy and characteristic.

7. That a persistent hard dry cough is the most suspicious type.

8. That an examination of the sputum is rarely of value for diagnosis.

9. That febrile disturbance especially in the late afternoon and evening is significant.

10. That enlargement of the cervical glands is of doubtful importance, but that glandular enlargement elsewhere may be important especially as the primary lesion in the lung is probably a glandular one.

11. That in nearly every case one or other apex is affected and that the right apex is most often the first clinically recognisable focus; that the lesion may frequently be demonstrable from the front of the apex before it is demonstrable from the back.

12. That dullness is almost invariably present over the affected part; that to elicit this dullness both light and heavy percussion may be necessary; that dullness is most frequently demonstrable at certain points below the clavicles and between the scapulae.
13. That increased vocal resonance is a more frequent sign than increased vocal fremitus and is present in a more marked degree.

14. That diminished expansion and flattening occur in a large proportion of cases, but that diminished expansion is a more constant feature than flattening.

15. That inequality of the breath sounds is a very early indication of trouble; that the duration of this is short and that it is usually succeeded by bronchial breathing, which is nearly always present and which remains indefinitely.

16. That friction and fine crepitations are the most significant accompaniments; and that all accompaniments when persistent and especially if localised are suspicious.

17. That spontaneous improvement is more common in girls than in boys; that from the 6th year the tendency to spontaneous improvement increases year by year, and that children in rural areas show a very much greater tendency to spontaneous improvement than children in urban areas.

18. That when cavitation occurs it most frequently does so at the right apex.
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