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CHESHIRE COUNTY COUNCIL.

EDUCATION DEPARTMENT.

REPORT

OF THE

Chief School Medical Officer

FOR THE YEAR

1919.


BY

MEREDITH YOUNG,

M.D., D.P.H., D.S.Sc.

Of Lincoln's Inn, Barrister-at-Law,

Lecturer in School Hygiene, Victoria University of Manchester.



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County Medical Inspection Staff, 1919.

Chief Medical Officer :

MEREDITH YOUNG, M.D., D.P.H.
(County Medical Officer of Health).

Assistant Medical Officers :

West Cheshire—*REGINALD LAWRENCE, M.D., D.P.H.
East Cheshire—ADA L. BARRETT, M.B., Ch.B.
North Cheshire—R. W. MACPHERSON, M.D., D.P.H.
South Cheshire—MARGARET G. ORMISTON, M.A., M.B., Ch.B.
School Oculist—DR. GRIFFITH APTHOMAS.

* On Active Service.

Health Visitors :

Twenty-two (whole-time) Health Visitors.

District Nurses :

Three (part-time).

Lecturer in Sick Nursing :

MISS HAWKES.

Chief Clerk :

VINCENT O'CONNOR
(Clerk to the County Medical Officer of Health).

Offices :

43, Foregate Street, Chester.
Telephone :—1017, CHESTER.

INTRODUCTION.

CHESTER,

AUGUST 18TH, 1920.

*To the Chairman and Members
of the Education Committee.*

MR. CHAIRMAN, LADIES AND GENTLEMEN,

In submitting this Report to you I have to acknowledge its brevity and the absence of anything of very special interest in its contents. Both of these are due to the fact that none of the branches of this work have yet been restored to normal conditions and it is almost as hard even now to "carry on" as it proved to be during the strenuous years of the actual war. Three of my Assistant Medical Officers were not demobilised until much later than was expected and the work had to be carried on with such temporary help as was available.

Strenuous efforts are being made to put this work back on a pre-war basis or better and the records for the current year will, I fully anticipate, be much improved.

May I commend your Committee's special attention to the now proved need for special education and training for the feeble-minded and the dull and backward to which I allude in this Report. I think it is time that a serious beginning should be made in this matter at all events in certain large centres of population such as Altrincham, Northwich, Runcorn, Ellesmere Port and Lower Bebington. If your Committee should view this proposal favourably I will be prepared to put a detailed scheme before you at an early date.

I have reproduced as an Appendix to the Report a study of enlarged thyroid glands (goitre) by Dr. W. W. Stacey who has devoted special attention to the subject. It is of special

interest inasmuch as it is not the record of results obtained in a scientific laboratory but is a study on a more human scale in which the sociological and hereditary factors of the case are reviewed. I hope that Dr. Stacey will find opportunity to extend his observations.

I feel, as do many others, that it is only by the encouragement of special research such as is evidenced in this report by Dr. Stacey that medical inspection work will be saved from becoming a mere stereotyped tabulation of the results of standardised questions and tests. There are unique opportunities lying at the feet of the Medical Inspector who takes this wider view of his duties and it is only by stooping and picking them that he can avoid the criticism, so often made of the school medical service, that it takes no account of anything beyond the fact that certain scheduled conditions do or do not exist.

I am indebted to your Committee for sympathetic and careful consideration of the many matters it has been my duty to place before you. I am also indebted to many others whose duties are connected with the school child for willing and competent assistance in the various branches of this important work.

I have the honour to be,
Ladies and Gentlemen,
Your obedient Servant,
MEREDITH YOUNG.

CHESHIRE COUNTY COUNCIL.

EDUCATION COMMITTEE.

ANNUAL REPORT

OF THE

CHIEF SCHOOL MEDICAL OFFICER,

1919.

Children Examined.

The number of children examined during 1919 has been as under:—

CODE GROUPS—				Corresponding figures for 1918.	
Entrants	...	...	3,686	...	3,391
Leavers	...	...	1,497	...	2,792
Intermediate Group (8 year olds)			1,363	...	1,817
OTHER GROUPS—					
Intermediate Group (other than 8 year olds)	...		97	...	363
Special Cases (excluding vision)	...	...	3,873	...	668
Re-Examinations	...		31	...	564
Special Vision Examinations (including Re-Examinations)			12,924	...	1,595
Totals	...		23,471	...	14,305

Further details are shewn in Tables 1 and 2 appended.

Table I.—Number of Children Inspected 1st January, 1919, to 31st December, 1919.

(A.) "Code" Groups.

(B.) Groups other than "Code."

Ages.	ENTRANTS.					Inter- mediate Group.	LEAVERS.					Grand Total.	Inter- mediate Group (other than 8 years)	Special Cases.	Re-examina- tions (i.e. No. of Children Re- examined)
	3	4	5	6	Other Ages.	Total.	12	13	14	Other Ages.	Total.				
Boys ...	48	328	786	535	188	1885	675	304	422	46	14	786	59	1947	28
Girls .	49	243	773	561	175	1801	688	283	394	34	10	711	38	1926	3
Totals...	97	571	1559	1096	363	3686	1363	587	806	80	24	1497	97	3873	31

Table shewing Children examined and classified according to Districts—Continued.

DISTRICT.	Entrants.					Inter- mediate. 8	Leavers.				Grand Total.	Inter- mediate (other than 8 years.) Special Cases.	Re-examina- tions (No. of Children Re- examined.)			
	Age in years.				Other Ages.		Total.	Age in years.						Other Ages.	Total.	
	3	4	5	6				12	13	14						
GIRLS.																
Altrincham and Bowdon ...	13	40	109	67	253	81	20	64	5	—	89	423	5	373	—	—
Ashton-under-Lyne and ... Stockport	9	62	122	83	305	80	41	28	1	—	70	455	7	514	—	—
Bebington and Neston ...	1	34	111	45	209	104	26	31	1	1	59	372	5	89	2	—
Chester Union ...	—	1	45	58	144	36	48	43	3	—	94	274	4	27	—	—
Macclesfield and Hayfield	7	7	17	31	65	14	9	9	—	—	18	97	—	447	—	—
Nantwich Union District ...	7	16	82	83	200	92	82	87	11	1	181	473	—	£3	1	—
Northwich Union District	2	31	77	56	181	53	10	41	6	—	57	291	5	3	—	—
Runcorn Rural ...	2	7	6	7	23	20	6	7	1	—	14	57	—	—	—	—
Runcorn Urban ...	1	40	122	78	260	145	1	27	—	—	28	433	8	42	—	—
Sale & Ashton-upon-Mersey	7	2	82	53	161	63	40	47	6	8	101	325	4	348	—	—
Total for Girls ...	49	243	773	561	1801	688	283	384	34	10	711	3200	38	1926	3	—
Total for Boys ...	48	328	786	535	1885	675	304	422	46	14	786	3346	59	1947	28	—
GRAND TOTAL ...	97	571	1559	1096	3686	1363	587	806	80	24	1497	6546	97	3873	31	—

Table III.—Return of Defects found in the course of
Medical Inspection.

DEFECT OR DISEASE.	CODE GROUPS.	SPECIALS.	
	Number Referred for Treatment.	Number Referred for Treatment.	
MALNUTRITION	69	20	
UNCLEANLINESS—			
Head	269	168	
Body	35	19	
SKIN—			
Ringworm—			
Head	29	4	
Body	3	—	
Scabies	11	5	
Impetigo	88	35	
Other Diseases	—	—	
EYE—			
Defective Vision or Squint	482	464	
External Eye Disease	131	183	
EAR—			
Defective Hearing	11	4	
Ear Disease... ..	43	72	
TEETH—			
Dental Disease	1025	306	
NOSE AND THROAT—			
Enlarged Tonsils	203	104	
Adenoids	273	133	
Defective Speech	1	3	
HEART AND CIRCULATION—			
Heart Disease—			
Organic	9	14	
Functional	4	7	
Anæmia	12	7	
LUNGS—			
Pulmonary Tuberculosis—			
Definite	2	1	
Suspected	23	—	
Chronic Bronchitis	—	8	
Other Disease	1	—	
NERVOUS SYSTEM—			
Epilepsy	3	—	
Chorea	4	6	
Other Disease	—	—	
NON-PULMONARY TUBERCULOSIS—			
Glands	12	4	
Bones and Joints	4	1	
Other Forms	1	1	
Rickets	19	10	
Deformities... ..	4	—	
OTHER DEFECTS OR DISEASES	48	36	

Nature of Defects discovered.

There does not appear to have been much variation from previous years in this respect. Uncleanliness has apparently lessened a good deal and the figures on dental disease shew a little diminution. The number of cases of defective vision reported amounts roughly to one per cent. of the children examined—a figure very much lower than any recorded in the latest Report of the Chief School Medical Officer of the Board of Education. The other conditions call for no special comment as to their relative incidence.

Treatment of Defects.

The point of practical interest in Table IV. (in which is set out the result of following up cases of defect) lies in the last column, viz. :—the number of defects *not treated*. Here one finds as still needing treatment the following :—

Nose and Throat Conditions	...	322
Dental Conditions	...	642
Defective Vision and Squint	...	244

Arrangements have been made for the remedy of this unsatisfactory state of affairs and I believe that an improvement has already set in. Tonsil and adenoid cases are being dealt with at most of the Infirmarys and Cottage Hospitals in the County. A whole-time dentist has been appointed and six (possibly seven) dental clinics will shortly be at work. A considerable number of children have had suitable lenses prescribed for defective eyesight and have obtained these through our contract system with various opticians.

Taking the figures as a whole we find that 11,275 children were found to be the subject of some defect and of this number 45 per cent. were definitely cured, close upon 33 per cent. were improved, 3·7 per cent. were unchanged and 18·3 were not treated at all.

The remedy of uncleanly conditions has been most marked : out of 4,844 cases of this character only four remained unremedied at the close of the year. Again out of 958 cases of skin disease only six remained untreated as the result of following up.

Only seven cases out of 492 where clothing and footgear were defective remained in more or less the same condition at the close of the year.

It is patent therefore that school medical inspection is effecting its purpose of directing parental attention to the needs of their children and checking disease at or near its onset.

TABLE IV.—Treatment of Defects of Children during 1919.

CONDITION.	No. of defects found for which Treatment was considered necessary.			No. of defects for which no report is available.	No. of defects treated.	Results of Treatment.			No. of defects not treated.
	From previous year.	New.	Total.			Remedied	Improved	Unchanged	
Clothing	38	257	295	10	279	109	148	22	6
Footwear	27	170	197	11	185	146	37	2	1
Cleanliness of head	262	4274	4636	93	4540	2197	2299	44	3
Cleanliness of body	45	163	208	13	195	132	57	6	...
Nutrition	20	78	98	9	89	73	14	2	...
Nose and throat	334	419	753	93	333	221	38	79	322
External eye disease	114	314	428	35	360	175	159	26	33
Ear disease	38	128	166	8	128	52	55	21	30
Teeth	560	1330	1890	150	1098	486	505	107	642
Heart and circulation	57	53	110	7	94	11	60	23	9
Lungs	31	29	60	2	45	20	20	5	13
Nervous system	7	16	23	1	19	6	11	2	3
Skin	40	918	958	23	929	761	156	12	6
Rickets	17	29	46	4	34	16	14	4	8
Deformities	11	9	20	1	11	..	2	9	8
Tuberculosis, non-pulmonary	14	26	40	2	34	5	23	6	4
Speech	8	1	9	1	...	...	...	...	8
Mental condition	8	7	15	...	12	...	...	...	3
Vision and squint	206	951	1157	94	819	619	79	121	244
Hearing	19	29	48	8	26	4	12	10	14
Miscellaneous	51	67	118	13	79	59	18	2	26
Total	2007	9268	11275	578	9314	5092	3707	418	1383

Defective Vision.

Dr. G. Apthomas who acted as School Oculist throughout the year gives me the following figures :—

General examinations of children	...	19,082
Special examinations of children for defective vision	... ..	9,842
Re-Examinations	... ..	884
Examinations under homatropine	...	984
Treatment for all conditions	...	1,214

Excluding the figure showing "general examination of children" in respect of which my information is somewhat vague, the total number of children whose vision has been tested by the School Oculist amounts to 12,924. I understand from Dr. Apthomas that this "general examination" of children was a more or less superficial examination by him of those who did not seem to be in quite good health, he being of opinion that as the medical inspection staff was still depleted he might as well see if any cases existed in the schools he visited which needed a little timely advice.

The conditions under which spectacles are provided are set out in my Report for 1918; this system has continued to work well except that parents living in places rather remote from a reliable optician have complained at times of the cost of taking their children to have spectacles fitted. This of course will always be a difficulty removable only by the provision of a travelling optician.

Means for the conservation of good vision in children are not sufficiently impressed upon those responsible. Probably the most neglected measure is the abstinence from close work during and after periods of illness. Measles, whooping cough, scarlet fever and other illnesses almost invariably are accompanied by congestion of the ocular tissues and unless near work is abandoned except for *very* short periods until the whole system has become restored to its normal tone and vigour the eyes may suffer serious damage—myopia and astigmatism being the probable results.

Reading or doing other close work by twilight is atrociously bad for growing eyes and parents should look to it that their children abandon such work and either sit and tell tales or go out for a game until the time has come for artificial light to be put on.

Teachers should realise that after a period of close work it is doubly bad for the health of the child and in particular for his eyesight to keep him in and employ him on a task involving close focussing of the eye when he should be in the playground. If he is to be kept in let the task be one which gives a rest at all events to the eyes.

Vertical writing is preferable to slanting as being more legible and particularly as conducive to a better position of the

body and a more physiological position of the eyes : in this position both eyes are as nearly as possible focussed equally on the writing, whereas with slanting writing the head is apt to be held on one side necessitating stronger (closer) focussing for one eye.

These are by no means all the things that matter but merely a few which experience has shewn me are very largely neglected in the case of school children. It cannot be too strongly emphasised that there is a great economic gain in preventing defective vision and correcting it properly when it is shewn to be defective, for there can be no question that a child with normal vision learns more rapidly than one with abnormal vision and the longer it takes a teacher to teach a child the more money is that child's education costing : this is saying nothing about the extra strain on the teacher which is no small one.

Defective Teeth.

There is no more important part of the scheme your Committee have undertaken for the care of the health of school children than that providing for the early detection of dental disease and its treatment. The evils which spring from dental disease are too well known to the educated public to need further discussion, but they still have to be brought home to the masses. And this can best be done, in my opinion, by practical demonstrations on children of school age and mothers at a time when the latter can be best approached—*i.e.*, at a Maternity and Child Welfare Centre. A few years of genuine work will, I am convinced, bring about a general betterment of health such as can be secured by no other single method of attack on unhealthiness. George Herbert's prophetic words—

“Look carefully to thy mouth,
Diseases enter there,”

are even more true to-day than when they were written and they cannot too often be made the text of a sermon on the prevention of disease.

At the Hoylake Dental Clinic a great deal of most valuable work has been done by Mr. C. K. Dinn, L.D.S., and no difficulty whatever has been experienced in getting children to attend. A dentist who is successful with children is a don in his profession : it is not always easy to find one with the necessary combined qualities of patience, deftness and the knack of talking to children in their own language.

Miss E. M. Greg most kindly made over to the Education Committee the apparatus and materials provided by her at the Wilmslow Council School. Five other Dental Clinics are on the eve of being started at Lymm, Runcorn, Congleton,

Sale and Nantwich and before long I hope to have one also at Northwich. These Clinics will be available not only for school children, but also for expectant and nursing mothers under the Council's Maternity and Child Welfare Scheme.

One whole-time School Dentist has been appointed, but it cannot be expected that he will be able to do the necessary work throughout the whole County.

Whenever a general anæsthetic is required for this work one of the Assistant School Medical Officers known to have experience will be detailed for the purpose.

Verminous Conditions.

The detection and treatment of verminous conditions has assumed an importance of recent years which compel the viewing of the matter from a different standpoint. Up to a few years ago lice were looked upon as symbolic of advanced and extreme dirtiness and the dangers attached to them were, at the highest, eczema and enlargement of posterior cervical glands. Now we know that the louse is the cause of the spread of Typhus Fever, Relapsing Fever and Trench Fever and in the course of time it may be proved guilty of the transmission of other infectious conditions.

The experience of the Army has given us some valuable information as to the best means of dealing with these disgusting parasites. The best precaution against head-lice is undoubtedly keeping the hair closely cropped. Other methods of prevention and treatment are admirably set out by Lt. Ll. Lloyd, R.A.M.C. (T.) (*Lice and their Menace to Man*) and I reproduce his remarks:—

“A second precaution that is useful is the use of pomades and oils for the hair. All lice hate grease, which runs over their bodies and chokes them. It is not necessary that any medicament should be added to the grease, and some of the so-called louse-destroying pomades are poisonous and dangerous in use.

“Many primitive tribes have a habit of greasing heavily both their heads and bodies when fat or oil is available. In Africa, in most native gardens quantities of the castor-oil plant may be seen growing, and apparently the oil produced is used for no other purpose. The author has also seen them, when a hippopotamus has been killed, cut lumps of fat out of the animal and smear themselves from head to foot. Whether these precautions owe their origin to their beneficial results in regard to lice, it is hard to say, but at

any rate the benefit accruing to them in this respect is very real.

"Mechanical means are more effective for head-lice confined to the head than for the body-lice; but even with these patience is necessary, and it can hardly be expected that an established colony of them can be all removed by the comb at a single operation, as there is a limit to the patience of the sufferer if not to that of the operator. The comb used should have fine teeth, and a little while before the combing the hair and scalp should be thoroughly washed with vinegar, which loosens the nits though it does not kill them. It has also been recommended by Howlett that the comb should be kept hot by repeated dippings in hot water, since head-lice, like body-lice, are irritated by heat above that of the body temperature, and the hot comb approaching makes them become active, so that they are more easily caught. The head should be held well over a sheet of paper, or better, a large dish, and all that is combed out should be emptied into a fire. Combing should proceed from the outer edge of the hair to the crown, and the instrument should press close against the scalp in each stroke. The successive strokes should not be made haphazard, but should pass gradually round the head, so that each hair from base to tip passes between the teeth of the comb. Where the skin is so much affected that sores have developed, thorough combing is too painful, and gentler means should be employed to get rid of the vermin. Under these circumstances the first and foremost thing to do is to cut the hair very short, burning all that is removed. A few protracted washings with a hot solution of 2 per cent. lysol will then destroy any vermin left, and though this is painful it will do good rather than harm. In using hot lysol solution it is better to have the patient lying on the back, with the bowl of fluid below the head and to sponge upwards. The irritation is then less. Lysol is a very penetrating substance, and the fluid is likely to penetrate through the eyelids if it runs into this region.

"An old remedy for head-lice is paraffin oil, and this is quite effective and safe, provided precautions are taken to avoid near contact with flame or fire. The hair should be thoroughly wetted with the oil, and then wrapped in a towel arranged turban-wise, or covered by a bathing-cap. After half-an-hour it should be well washed in warm soap and water, and afterward combed free of dead lice and nits. As before, this is more readily done if vinegar is also used. This method, if properly carried out, is much more certain than combing alone, any vermin that may escape the comb having been killed and so mattering little. Naphthalene

paste (crude unwhizzed naphthalene (four parts) and soft soap (one part) will also be found effective for head-lice if rubbed well into the scalp and hair. The best treatment for head-lice on the body hair is to shave off entirely that infested."

Backward Children.

A most interesting experiment—if indeed at this stage it can be called such—has been carried on at the Victoria Road Council School, Northwich, on the initiative and under the careful supervision of the Head Teacher, Mr. A. E. Sproston, and can best be described in his own words. I understand that Mr. Winn, H.M.I., has reported very favourably on this class after an experience of twelve months and the records of progress kept at the school shew unmistakably beneficial results. I hope that similar classes will be established in other centres where the numbers justify such action.

"The class is a mixed one for children between the ages of 7 and 10 and consists of children who are backward for various reasons, *e.g.* :—

- A. Irregular attendance (due to late admission, negligence, illness, etc.)
- B. 1. General physical defects (general constitutional debility, malnutrition, one, at any rate, T.B. suspect, and say fatigue).
2. Special defect, *e.g.*, Retarded speech.
- C. 1. Weak general ability, probably inborn (not mentally defective).
2. Weak specific ability, *e.g.*, 'Memory,' 'Observation,' 'Attention.'
3. Weak specific educational ability, *e.g.*, 'Number,' 'Sound,' etc.

"Besides these we have had quite a number who appear backward for no apparent reason. I find that these when tested by Intelligence Tests (Binet as modified by Terman) do not give a low Intelligence Quotient, but are quite the mental standard of their age. I attribute their backwardness to the large classes taught under modern methods in our Infant Schools. Under these methods, the bright, intelligent, pushing children monopolise conversation and action, whilst those that are diffident sit apathetic and consequently do not benefit as they should. The reason for all this is, of course, the large class. Classes in Infant Schools particularly should be small. The type of child just mentioned soon benefits in the smaller special class and is quickly drafted to its appropriate standard.

"The class has an average attendance of about 25, although, of course, more pass through in one year. Last year some 34 passed through, some taking 6 months, some 9 months and so on. These are then sent to the classes suitable to their age as soon as they are capable of receiving benefit from the instruction given in those classes. Other backward children for whom there had been no room are then placed in the special class.

"The work is chiefly carried on by means of Handwork Exercises, as by this means we are able to 'get' the child quickly. Physical Exercises are taken every day in the open air on the lines adopted in the Infant Schools, gradually tending to a little more formal drill in order to get the child to concentrate his or her attention, as non-concentration of thought and action is one of our greatest enemies. Our whole work, too, has as one of its aims this concentration of thought and action."

Mental Defect.

There ought to be an investigation into the causation of mental defect on pretty broad lines if any progress is to be made in the etiology of the condition. Family history is usually pretty fully inquired into, but where one feels that one is falling short is that there is no investigation into the results of the Wassermann reaction, no examination of blood conditions and no special inquiry into the possible influence of the internal secretions. The last-named, in my opinion, may possibly hold the secret of the whole matter—in fact, I think that, apart from cases of mental deficiency due to definite malformations of the brain substance such as porencephaly, hydrocephaly and those due to asymmetry of skull, the internal secretions are the responsible factors. But so far we have nothing much to indicate to us whether there is deficiency of secretion on the part of the thyroid gland, the pituitary gland, the thymus gland, the ovary, the testicle and so on and all we have to guide us is the results of the empirical administration of extraordinary animal extracts of these various glands.

That all these internal glands have a vast influence on physical and mental development there is no longer any doubt: it has been proved in the case of several of them almost beyond demonstration. And I opine that further investigation will revolutionise future lines of diagnosis, prognosis and treatment.

Facts have accumulated which shew the necessity of providing special schools or classes for the feeble-minded and for those merely dull or backward. In certain special areas,

e.g., Altrincham and Northwich, there are already on my lists sufficient feeble-minded children to warrant the commencement of special classes. It may prove to be the case that owing to differences of age and sex special classes would be either too expensive or otherwise impracticable, *e.g.*, owing to the necessity for the provision of guides or conveyances. Should that be so, your Committee will have to consider the question of a residential school. There is a prospect that accommodation for low-grade cases may be provided at Sandlebridge—where, incidentally, it is very badly needed in my opinion. The problem is an exceedingly difficult one in a county area and any scheme will have to be very carefully thought out before action is taken.

Skin Diseases.

It is quite a common experience for reports to reach us to the effect that children suffering from chronic skin-disease are kept away from school and sent to work as errand-boys, in nursery gardens, in milk-delivery, etc. Under such circumstances the parents do not go to much trouble in the way of treatment. When it is possible to get the Minor Treatment Centres to work cases of this kind can be more firmly handled than at present.

School Attendance.

It is apparent that in the large majority of instances the reason for non-attendance at school is a medical one. "Medical certificate" looms very large in the returns shewing the causes of absence from school. For this reason your Committee have decided that, when opportunity occurs, the Health Visitors shall be given the duties of School Attendance Officers, at all events in a limited manner. It would be inadvisable for them to deal with truancy for example beyond reporting the case for further action to an *ad hoc* School Attendance Officer, who would still be required for cases of this and a similar nature, but who with limited duties would be able to operate over a larger area. The Health Visitor would, from her other experiences under the Maternity and Child Welfare Scheme and the following up of medical inspection cases already know a good deal of the children concerned and would also possess the right kind of influence over parents. The Board of Education favour a system of this kind (see Annual Report of Chief Medical Officer for 1916) and it is already operating in several areas. When possible, therefore, a change to this procedure will be adopted.

Sanitation.

Each school visited is overlooked by the Medical Inspector and a "follow-up" sanitary report sent in to me. If any

matter needs attention the Managers are asked to see to it. Comparatively few conditions have called for complaint. Amongst the more common are playgrounds, the surfaces of which have been in a bad condition and likely to lead to accidents to children for which of course the Managers would be liable in damages. Other fairly common complaints are improper storage of refuse such as school-sweepings and, in rural areas, the water-supply is often a difficulty.

West Kirby Convalescent Home.

The fifteen beds retained by your Committee in this excellent Institution have been kept continuously occupied by the little subjects of various diseases. The combination of a limited amount of education with medical and surgical treatment is an ideal one. There is no doubt but that the treatment of the disease is enhanced in its rapidity and in its ultimate success by the provision of some regular mental occupation which prevents the formation of morbid mental habits—a condition quite as common in children as in adults. The work of the teachers is no doubt very difficult at times, but the success attained must be all the more gratifying.

At the risk of repetition I feel that I must say that the money spent on this Institution is one of the soundest investments which could possibly be made by your Committee.

Cost of Medical Inspection.

I am indebted to the County Accountant for the following statement shewing Payments and Receipts for year ended 31st March, 1920.

PAYMENTS—	£	s.	d.
Proportion of Salary of Chief Medical Officer...	243	8	9
Expenses of Chief Medical Officer ...	22	9	2
Proportion of Salaries of Assistant Medical Officers	1068	5	11
Expenses of Assistant Medical Officers ...	155	19	2
Salary of School Oculist ...	425	0	0
Expenses of School Oculist ...	145	14	10
Salary and Fees of Dentists ...	69	11	2
Proportion of Salaries of Health Visitors ...	917	11	2
Expenses of Health Visitors (including Uniform, &c.) ...	391	5	9
Drugs, Materials, &c. ...	20	19	10
Contributions to External Bodies ...	58	1	9
Printing, Stationery, Postage, &c. ...	128	11	11
Proportion of Office Staff Salaries ...	295	18	1
Apparatus (Oculist and Dentist) ...	78	16	1
Advertising ...	9	6	1
Provision of Spectacles ...	2	14	2
Operation Fees to Doctors ...	20	9	6
Miscellaneous ...	14	2	5
Proportion of Rent, Rates, Heating, Lighting, Cleaning, &c., of Central Offices ...	56	8	5
	<u>£4124</u>	<u>14</u>	<u>2</u>

RECEIPTS—

Grant from Board of Education *re* Medical
 Inspection of School Children ... 111 15 4
 (Winding up Grant on account of year
 1918—1919)

The Grant on account of this years expenditure is included in the Substantive Grant and amounts approximately to one-half the net expenditure.

Dental Clinic Fees ...	3	1	0
	<u>£114</u>	<u>16</u>	<u>4</u>

APPENDIX.

Thyroid Enlargement in School Children,

By Dr. W. W. Stacey.

INTRODUCTORY.

To collect information on this subject is a most difficult task, beset by obstacles which have proved in routine school medical inspection insurmountable; but I think sufficient data have been collected to show that this subject is well worth attention and may explain conditions often met with in school children.

Parents are not always present at the medical examination of their children, consequently the family histories of these cases are under-estimated.

Again in this country the possession of a Goitre is considered a misfortune rather than otherwise and individuals who are afflicted with these appendages attempt to conceal their shame. In the Alps it is quite the reverse. In France, Italy and Switzerland it is an advantage to be goitred, as it secures exemption from military service. A Goitre is a thing to be prized—it is worth so much hard cash—and it is an unquestionable fact that the perpetuation of the great goitrous family is assisted by this very circumstance.

As regards the mental condition of these cases, wherever time has permitted, a measurement of intelligence has been made, but the standard attained in the school in relation to their chronological age has been used to show their mental ability rather than the result obtained by any series of tests taken at one examination.

Physiology of the Thyroid Gland.

If a child is deprived of its Thyroid Gland, either congenital absence—or absence of its secretion though a rudimentary gland be present—or by operative measures, then the child ceases to grow. If Thyroid Gland (in the form of an extract of the Thyroid of the sheep) be now administered, the child will begin to grow. If this extract is withheld then once more there is arrest of growth. The Thyroid secretion is therefore indispensable to the general development of the individual.

At the other end of life when the Thyroid Gland atrophies and ceases to supply its internal secretion, we have the condition of Myxœdema established. If Thyroid extract is given to such an one, the accumulation of waste products is immediately attacked, destroyed and eliminated—the amount of urea in the urine is enormously increased—the patient steadily loses weight, until all the waste material is eliminated, when the weight remains stationary even though the dose of Thyroid extract is increased. If at this stage Thyroid extract is withheld there is once again an accumulation of waste products and the Myxœdematous condition is re-established.

It can be asserted, therefore, whatever else may be the physiology of the Thyroid Gland, (1) that the Thyroid Gland governs the building up of the cells, that is to say, the formation and growth of the tissues and (2) that it regulates the destruction of the albumen molecule and governs the processes by which waste material, resulting from the incessant regeneration of the organs, is eliminated.

We are now able to state that Thyroid inadequacy in children is attended by a more or less complete arrest of the normal process of growth, together with a varying degree of infiltration—the intensity of both signs depending on the degree of inadequacy; in the adult, where growth has reached its maximum, the sign is confined to the infiltration, the amount of which depends upon the amount of inadequacy of the Thyroid secretion and the length of time it has been inadequate. Between the extremes of these conditions (Cretinism and Myxœdema) there can be every degree (short of completion) of the affection.

From text-books we learn that the Thyroid Gland is relatively larger in women than in men, that it undergoes rapid enlargement at puberty and temporary alterations in its size are common at the menstrual periods and during pregnancy. It becomes atrophied in old age.

It would appear then that this enlargement of the Thyroid Gland is a hyperplasia of the gland substance whereby a greater internal secretion is established in accordance with the requirements of the body, at such strains in life as puberty, menstruation and pregnancy and that with cessation of these strains, the Thyroid Gland atrophies in degree according to the body's requirement of its secretion.

Enlargement is both physiological and compensatory—in the majority of people no such enlargement is visible to a

casual observation—to wait until symptoms of the enlargement present themselves is to wait sometimes until the gland enlarges to pounds in weight.

Age.	Children Examined.	Enlarged Thyroids.
5	294	1
7	75	1
8	358	10
9	76	2
10	36	3
11	24	1
12	323	60
13	356	77
14	18	7
3, 4 & 6	431	0
All Ages	1991	162

From the table we see—

- (1) That the case incidence is most marked at puberty.
- (2) That the numbers are such as to make the condition worthy of consideration, both in regard to causation and other physical and mental associations.

Prevalence of Goitre, and the common theories advanced as to its causation.

Goitre is found in all parts of the world, but is most common in certain deeply-sunk valleys of the Alps, in Italy, France and Austria, in which there is a deficient circulation of air and a limited supply of sunshine. It is also prevalent in the Pyrennees, in Bohemia, Salzburg, Thuringia and other mountainous parts of Europe. Major McCarrison, I.M.S., states: "In India at the present time not less than five million persons are affected with Goitre, while half a million is a low estimate of the numbers who suffer from its congenital manifestations. In Great Britain it occurs sporadically, mostly in Derbyshire and in the Lancashire and Yorkshire dales. In Sedburgh, where there is an outlet by rail and a main road, Goitre is slight compared with the whole valley of Dentdale, which consists of a town, scattered hamlets and farmsteads: here Goitre is very bad and cretins far from infrequent and the slighter affected area of the head of Wharfedale, Wensleydale and the upper part of Lunesdale. It will be seen then that Goitre is prevalent in those mountainous districts where cretinism is found, though by no means confined to them. Cretins are frequently the offspring of Goitrous parents and themselves often have a Goitre. Goitre, however, may exist apart from Cretinism."

To the many theories as to the causation of Goitre I am indebted to the paper on "Endemic Goitre," by Major McCarrison, I.M.S., written for the *Practitioner* (January, 1915). Here the many theories have been narrowed down to those which attribute it to chemical ingredients of drinking water, to geological peculiarities of the soil imparting to the water a specific colloidal poison, to faults of nutrition and to living micro-organisms. Later experimental and epidemiological research has definitely demonstrated that neither the chemical constituents of the water, geological peculiarities of the soil nor factors of nutrition are primarily responsible for the beginning of this disease, but that its nature is infectious.

Let us look more closely into the statement that "Goitre is most common in certain deeply-sunk valleys in which there is a deficient circulation of air and a limited supply of sunshine."

It must be definitely understood that in these districts Cretinism and Goitres are intermingled not merely in the same vicinity, but even in the same houses and of the same family. From what has already been stated, we know that Cretinism is the result of complete withdrawal of Thyroid secretion and that a Goitre is a compensatory hyperplasia of the Thyroid Gland to secure that increase of Thyroid secretion at those strains in life when more secretion is necessary for bodily functions.

In the Alps it is tolerably certain that the centre of its distribution in the valley of Aosta is about the middle of the valley, that is in the City of Aosta and in the neighbouring towns of Gignod, Villeneuve, St. Vincent and Verux and in the villages and upon the high road between those places. The condition increases after Ivrea is passed, attains its highest ratio at or about Aosta and then diminishes as its upper termination is approached. The natives of the tributary valleys are almost free from the malady. A parallel case is found on the other side of the Pennine Alps, that is the Rhone valley. Here again the extremities of the valley are slightly affected compared with the intermediate districts, particularly those between Brieg and St. Maurice.

It was de Saussure who put forward the theory of heat and stagnation of air, as implied in our deficient circulation of air and a limited supply of sunshine. In regard to the valley of Aosta it is particularly inapplicable in that the valley's course is East to West and the oppression which strangers say they feel in the middle of the valley is due not to stagnation of air but to absence of shadow. Moreover, several towns and villages where the malady is more general

are situated at the entrances of valleys and upon elevated slopes, with abundant natural facilities for drainage, free from malaria, which has been suggested as accounting for the condition in the Rhone valley.

A former supposition was that the condition arose from the habitual drinking of snow and glacier water. De Saussure brought forward the facts that the disease was entirely unknown precisely in those places where the inhabitants were most dependent upon these kinds of water and most common where such was not the case—that the high valleys were untainted while the low ones were infected.

The theory that Goitre was induced by the use of chemically impure water and especially hard water cannot be held generally, for there are many places where the malady is present and the water is by no means hard. As an instance I give an analysis of Cogshall water, near Northwich:—

Total Hardness	...	25.9	parts per 100.000
Temporary Hardness	...	12.1	" "
Permanent Hardness	...	13.8	" "
Free Ammonia	...	0.0011	" "
Albuminoid Ammonia	...	0.0045	" "
Nitrites	...	Nil	

No one could call this an impure water; certainly it is hard, but I have examined water supplies for the troops in the Salonika area which were equally hard and I cannot say that Goitre was prevalent among the natives.

Dr. Moffat at a meeting of the British Association at Liverpool stated he had ascertained that in a carboniferous district Goitre was prevalent and that it was absent in new red sandstone.

Harmonising with these facts it is found that infants are seldom born with Goitre, but that they develop as the child grows up and that it will sometimes appear and disappear from mere change of locality. There is no need for a child to be born with a Goitre, for it is supplied from the maternal Thyroid secretion; this increase of Thyroid secretion during pregnancy accounts for those women who are sub-thyroidic, being in the best of health during gestation; after the pregnant state there is less demand for Thyroid secretion, so the Thyroid Gland atrophies and the woman returns to her former suffering and ill-health.

At a later date in the child's life, when the strains of life assert themselves, the Thyroid gland will enlarge to meet the increased demands for its secretion.

When Savoy was annexed to France and the administration took stock of the resources of its new territory, they found the conscripts were few, though the acres were many. They cleaned the villages, analysed the waters (forbidding some to be drunk) and gave the children who came to school lozenges containing small doses of Iodine. In eight years, out of 5,000 children so treated, 2,000 were cured and 2,000 were improved; the cures would have been more if the parents "had not opposed the care of the Government in order to preserve the privilege of exemption from military service."

With the knowledge that the active principle of the Thyroid secretion is an Iodine compound is there any wonder at the results obtained? The Goitrous children were given that of which they were in need and which when supplied allowed the Thyroid gland to resume its normal size.

Others have imagined that intemperance, poor living, foul habits and personal uncleanness sowed the seeds. This opinion is entitled to consideration. Intemperance of divers kinds is fruitful in the production of insanity; herding together in filthy dwellings with little or no ventilation may deteriorate physique as much as extreme indulgence may the mind, but they are inadequate to account for the disease, still less to explain its incidence in the "so-called" better class.

Is there any explanation as to the causation of this condition which commends itself by reason of its general applicability?

The fertility of the valley of Aosta is proverbial; with its vineyards and cornfields, abundance of flocks and herds and its great mineral resources, there is enough and to spare both for man and beast. True there are poor there as everywhere, but they are not driven to seek for subsistence in other places and remain from generation to generation rooted to their native soil. The large number of persons who are found in this valley having the same surnames is a proof of the well-known fact that there is little or no emigration from the valley and that there is an indefinite amount of intermarriage between the natives.

We have it stated that there are five million Goitrous people in India—this I take to be of British India, not including the native States, whose population is in the neighbourhood of eighty millions, the whole population being about 350 millions. I am informed that Goitre is not common among the Konds (Khonds), who inhabit the north-east corner of the Deccan plateau. These are Dravidian people and are less influenced by Hindooism than any other tribe. They

are hill people and the "caste" system has not affected them; they still retain their original customs and marriage into the same tribe is not allowed: whereas if a "caste" man marries outside his "caste," he becomes "out caste." There is thus a limitation in a man's choice in marriage even if the marriage has not already been arranged by the respective parents.

Again, we have stated how the affection around Dentdale is more prevalent than in Sedburgh, Wharfedale and the upper part of Lunesdale. We see it in our rural areas, where there is small emigration and perhaps from mercenary reasons inter-marriage is far more common than is generally supposed or realised.

It will at once be asked "Why, then, are not the tributary valleys of the Valley of Aosta full of Cretins and Goitrous people?" The answer is that these lateral valleys are comparatively sterile and are unable to support their population from their internal resources. Large numbers annually leave and do not return; some come back, having formed alliances elsewhere. There is a constant circulation and introduction of new blood.

That absence of Thyroid secretion is a degeneracy cannot be denied; that the hyperplasia of the Thyroid Gland such as we are considering is an indirect visible sign of sub-thyroidism is equally certain and though the balance between supply and demand is more or less met in this way, it is nevertheless a degeneration and by intermarriage the affection becomes more marked and there seems no reason why this sub-thyroidism should not go on to complete Athyria and so produce Cretins.

Sociological Factors.

The following figures obtained in Northwich and district are of interest:—

Number Examined.	Enlarged Thyroids.	Enlarged Thyroids present in	Free from Enlarged
Ages 14 to 8 years.		Mother. Father. Sister. Brother.	Thyroid in rest of family.

GIRLS.

593	123	11	3	26	1	82
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BOYS.

550	37	3	0	6	2	26
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We are all aware that consanguineous and neurotic marriages are fruitful sources of degenerate children.

The truth of Sir William Aitkin's maxim that "a family history including less than three generations is useless and may even be misleading" is obvious.

Similarity of temperament induced by a common environment which Strahan calls "social consanguinity" is also a potent factor in degeneration. Living under similar customs, habits and surroundings, labouring at the same occupations and indulging in the same dissipations tend to engender like diseases and degenerations irrespective of blood relationship. Persons not even distantly related by blood are in reality much more nearly related in temperament than cousins or even nearer blood relations who have experienced widely different modes of life. This "social consanguinity" is the great curse which dogs every exclusive tribe and class. It has largely added to real or family consanguinity and appears likewise in the tendency of the neurotic to intermarry, popularly expressed in the proverb that "like clings to like."

Number Examined. Ages 14 to 8 years.	Enlarged Thyroids.	Standard attained in school corresponding to chronological age.			No History.
		Normal.	Below Normal.	Special Class.	
GIRLS.					
593	123	43	41	11	28
BOYS.					
550	37	10	13	2	12

One has to live under these conditions to realise the full meaning of "social consanguinity"; to know that 6,000 men out of a total population of 20,000 are working at the same industry; to find the same surname appearing repeatedly in the same locality; these facts make one ponder the more.

The necessary inquiries are beyond the powers of private persons and their pursuit will be found sufficiently difficult by official investigators. Great reluctance will be exhibited to disclose the information which should be sought and the common cry will certainly be raised that such scrutiny is without general advantage and is painful to private feelings, yet no satisfactory conclusion will be arrived at (especially regarding the origin of Cretinism) until the pedigrees of a large number of examples have been traced. The numerical test is the only one which is likely to discover the reality.

Effects of Thyroid Insufficiency.

There is no necessity to enter into the absolute types of Cretinism and Myxœdema, the signs and symptoms of which are so well known, but attention should be drawn to those signs and symptoms of slight Thyroid Insufficiency which are passed over either from inability to recognise their importance or from absolute lack of knowledge of the subject. For these I am indebted to the article on Thyroid Insufficiency by

Léopold-Lévi, M.D., in the *Practitioner*, February, 1915, and which are described as follows:—

1. Transitory Infiltration—a white indolent oedema which does not pit on pressure, makes its appearance in the vicinity of the eyelids, the forehead and the cheeks: occasionally there is transitory swelling of the feet and the subject finds that his boots are temporarily too tight for him: the fingers may become sufficiently swollen to render the removal of the rings a matter of difficulty. This transient oedema occurs with varying frequency—it may or may not be periodic in its occurrence and it is observed in the earlier part of the day, or as the result of worry, fatigue, menstruation, migraine or an asthmatic attack.
2. Hirsute Derangements: such are partial congenital alopecia, capillary nanism (arrested development), premature baldness, premature greyness. The eyebrow sign is most important: it consists in absence or premature falling of the eyebrows or rarefaction or disappearance of the outer third.
3. Caloric Disturbance.—(a) In its most attenuated form, this manifests itself as coldness of the extremities, especially of the feet. It is frequently unconscious, particularly in children or it may be subconscious.
 (b) A second form appears as chilliness, either general or confined to one or other of the extremities or localised in the back or thighs. The sensation is conscious, the patient making frequent complaints and employing measures of all kinds to guard against it.
 (c) A third manifestation is shivering fits, which come on after meals, or in the earlier part of the day. They may be momentary, or they may be prolonged and accompanied by chattering of the teeth and trembling of the body.
 (d) The temperature as measured by the thermometer is frequently several points below the normal, especially at night.
 (e) People with subnormal temperatures are frequently exquisitely hypersensitive to cold (Hertoghe). The slightest draught provokes rheumatoid or neuralgic pain or brings on lumbago, torticollis or migraine.
4. Chilliness is associated with vaso-motor derangement, of which aero-asphyxia, cyanosis and chilblains are the manifestations. The pulse is usually small and slow.

5. An intestinal symptom which is the stamp of the subthyroidic temperament is constipation. It is susceptible to Thyroid treatment.
6. Fatigue, especially matutinal fatigue, is very common. Subthyroidic people are usually loath to get up and they are not at their best in the morning. They usually brighten after they have breakfasted and have begun to move about. These subjects sometimes say that they were "born tired."
7. Anorexia.—Subthyroidic children have rarely much appetite and this is frequently the case with adults. They have to be forced to eat and eating gives them no pleasure. This symptom improves sometimes to a surprising extent under the influence of Thyroid extract.
8. Somnolence.—Subthyroidic subjects require a great deal of sleep and they fall asleep readily after meals.
9. The subthyroidic temperament is associated with a tendency to obesity.
10. The skin is dry, rough, harsh, thick, scaly and ichthyotic.
11. The stature is small, generally below the medium. The subject has either always been small or has ceased to grow as the result of some illness which affected his Thyroid Gland.
12. Certain developmental processes are retarded (dentition, walking, speech); sometimes development of the testes, brain, hair, teeth, etc., is arrested.
13. On the other hand, there is sometimes a tendency to premature senility. It is manifested by varicose veins, hæmorrhoids, excessive development of the veins of the hand, a tendency on the part of the teeth to loosen and come out, premature baldness and greyness.
14. Subthyroidic persons are subject to muscular and articular pain and to frontal and occipital headache. The latter is more severe in the morning and is so persistent that they end by becoming accustomed to it.
15. To these must be added apathy, indolence and depression, the combination uniting to form the syndrome of partial neurasthenia.
16. The eyes are frequently deep set, small, atonic and lacking in expression; they resemble glass eyes.

17. Viewed as a whole, the subthyroidic temperament is characterised by attenuation of the vital reactions and diminution of the nutritional changes.

It is exceptional to find all these signs and symptoms present in one individual: the greater the number, however, the greater the likelihood of their disappearance under Thyroid medication.

Conclusion.

It has been very surprising to find how often several of these symptoms have appeared in children during examination, but neither time nor facility has allowed a thorough investigation into the subject. I cannot help feeling that Thyroid Insufficiency is far more prevalent amongst school children than is generally supposed and if only investigation into these cases could be made, a large number of the dull and backward children would be found to be sufferers from this form of disease.