blood cells only at relatively low temperatures, but requires subsequent warming to body temperature to allow the necessary union with complement and consequent haemolysis. This phenomenon has been demonstrated by repeated experiments on the blood of our patient *in vitro*. The skin reaction to cold in this patient is of the usual form seen in other skin injuries—namely, the triple response; cold of the degree here used produces no such response in normal persons. In previous publications from this laboratory^{3, 4} a great deal of evidence has been brought forward to show that this triple response—namely, local reddening, increased permeability leading to whealing, and a reflex arteriolar flare—is due to the liberation of a histamine-like substance already present in the skin cells. The reaction occurs in this patient as a sequel to cold applications, temperatures of from 0° to 19° C. being effective in producing whealing; at 0° C. cooling for only half a minute is sufficient. The reaction is purely local.

The response of the skin to cooling is due to the presence of a dermolysin in the patient's blood. The skin of other subjects is rendered similarly sensitive to cold by the intradermic injection of this patient's serum.

The conditions under which the dermolysin and the haemolysin act are similar. Thus, cooling followed by warming is essential in both instances, and very prolonged cooling is unfavourable to both reactions.

CASE II.

H. M. is an artist, aged 64 years; he was admitted for cardiac failure with venous congestion and slight oedema, but without sign of valvular lesion. There is no history of paroxysmal haemoglobinuria nor evidence of syphilis. Whilst in hospital his skin was found to be abnormally sensitive to cold, and he then gave a history, extending over a period of twenty-five years, of nettlerash occurring on any surface exposed to cold.

In this patient cold produces urticaria locally in the skin; exposure at 0° and 10° C. for ten minutes gives a typical urticarial reaction; but his responses to varying degrees of cold and length of exposure are somewhat variable from day to day. Prolonged exposure of the arms to cold water gives no haemoglobinuria; *in vitro* tests provide no evidence of a haemolysin in his blood. His serum, however, contains a dermolysin, which can be transferred readily to the skins of normal subjects by injection, causing them to react similarly to cold.

CASE III.

W. W. M., a boy of 9 years, had frequent attacks of red urine for three winters, but is said to have had none for the last four years. The attacks always followed exposure to cold. The boy's Wassermann reaction was positive four years ago, but is now negative (he has been receiving antisyphilitic treatment). There is no history of skin eruptions.

This boy, giving as he does a typical history of paroxysmal haemoglobinuria, has at present a haemolysin in the blood, as shown by *in vitro* tests. The skin has been tested with varying degrees of cold from 0° to 15° C., but no whealing can be obtained. The skin of a control subject injected with the patient's serum fails to react to cold.

On the basis of observations upon these three patients, and upon other observations to be described at a later date, we conclude that there are three types of case in which there is a specific reaction to cold—namely, simple haemoglobinuria, simple urticaria, and haemoglobinuria and urticaria combined. The haemoglobinuria in the first and third types is due to a haemolysin, the urticaria of the second and third types to a dermolysin. We have as yet insufficient evidence to show that these two substances are either identical or different, but this question is being investigated further; we have evidence, in their frequent association and in the general resemblance of the corresponding reactions, that the two substances are closely allied pathogenetically.

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RADIUM TREATMENT OF INTRINSIC CARCINOMA OF THE LARYNX.*

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At St. Bartholomew's Hospital researches in radium therapy have been carried out since 1913, and many different types of growth have been treated. At first we employed large doses of radium, either as external applications or buried in the centre of the growths. With these methods it was found that there was too much local destruction of tissues. Radium burns were often produced and the wounds healed slowly. Necrosis and sloughing of deeper tissues were caused, and in many instances secondary haemorrhages occurred. After fifteen years' experience we have come to the conclusion that radium should be buried in the tissues whenever possible, and that as a rule small amounts should be used for long periods. To obtain a uniform irradiation platinum-iridium needles containing radium are buried around the growth, the greatest care being taken to prevent sepsis.

With smaller doses and better technique our results have gradually improved, and four years ago we devised an operation closely resembling that of Professor Bayet for the treatment of intrinsic cancer of the larynx which we hoped might give better results than the more mutilating treatments such as laryngo-fissure and laryngectomy. We have now treated 15 cases of carcinoma of the larynx by this method; in 13 the diagnosis was confirmed by microscopical sections before they were treated.

Method Employed.

A skin incision is made over the thyroid cartilage, starting at the centre of the hyoid bone and extending outwards and downwards along the posterior border of the thyroid cartilage. The infra-hyoid muscles are exposed and split longitudinally. The lateral aspect of the thyroid cartilage is exposed; the perichondrium covering it is divided and stripped backwards and forwards. The greater part of the cartilage is then resected. Thus a large window is made in the thyroid cartilage, but a framework is left consisting of the four margins. By this means the outer surface of the growth covered by the perichondrium is exposed. It is important not to destroy this capsule or to cut into the growth. The cartilage is removed for two reasons—to allow the needles to be placed as close to the growth as possible, and to prevent the perichondritis or necrosis which may be caused by the radium.

From five to ten radium needles are thus inserted lying parallel to one another and vertical. To keep them in position the ends of the needles are tucked under the framework of the cartilage. Care is taken that the needles do not penetrate into the growth or into the larynx. At the lower end of the wound, if the growth is subglottic, the needles are pushed inside the cricoid ring, but in this situation the tissues are often so thin that occasionally the needles may perforate the air passage.

Each needle has attached to it a piece of linen thread soaked in a solution of flavine 1 in 1,000. This material seems to cause less irritation than silk or others that have been tried. The threads are all tied together and buried beneath the muscles. Double sutures are inserted into the skin, half of them being tied at once to close the wound completely, and the other half left so that they can be tied later after the radium has been removed. No drainage is employed, and the skin incision is completely sealed with a collodion dressing. If the growth has extended across the middle line, a second window is made in the thyroid cartilage on the opposite

* A paper read at the Second International Congress of Radiology held at Stockholm.

side, and needles are buried there also. A low tracheotomy is then performed. This is deliberately made the last stage of the operation to prevent infection of the laryngeal wound. Tracheotomy has been performed in all the cases because the reaction which results from the radium may cause so much swelling that the glottis may become temporarily obstructed. In six of the cases the patient could not have breathed satisfactorily without a tracheotomy tube.

The needles have been left *in situ* for periods of from four and a half to eight days, according to the dose of radium employed and to the extent of the growth that had to be treated. At the end of the treatment the wound was found to be infected in every case. In some of them there was definite pus, while in others the exudation was serous, blood-stained, or fibrinous. Slight rises of temperature (99° to 101°) were common, but in only one case was the wound septic enough to cause anxiety. Cough has been a prominent feature of all the cases while the radium was *in situ*, and a good deal of sticky mucus has been secreted in the larynx. In no case has the inflammation extended downwards and caused bronchitis. With one exception, no shock has resulted from the treatment. There has been practically no pain or discomfort, and none of the patients has been seriously ill.

The time of the removal of the needles depends to some extent on the amount of reaction and inflammation in the wound. In one case the suppuration was so severe that the needles had to be removed earlier than was intended. In such an instance the skin wound requires drainage for several weeks. After removal of the needles the wound should be thoroughly irrigated with hydrogen peroxide or flavine, and unless pus has been present it should be closed completely wherever possible. If there is much effusion a small drainage tube may be retained for a few days. Some swelling and induration of the neck results from this treatment, and may persist for a month or two. Ultimately the wounds heal soundly with soft movable scars.

Changes in the growth itself occur rapidly, and even in ten days the lesion may appear less nodular. Often the surface is then coated with a layer of white fibrin, the surrounding parts are generally oedematous, and in some instances the swelling may occlude the glottis. Later the inflammation subsides, and after six weeks all signs of growth may have disappeared, leaving the cords symmetrical and equally movable. About this period the tracheotomy tube can usually be removed.

Dosage and Filtration.—We have throughout used a 0.5 mm. filter of platinum containing a small percentage of iridium. The applicators have been in the form of needles 2 cm. and 1 cm. long, containing respectively 1 or 0.5 mg. of radium element. In some cases these needles have contained 0.9 and 0.45 mg. On the average eight needles, seven long and one short, are used if one side only is being treated, and about twelve for both sides. With about 7 mg. of radium element in the wound we usually leave the needles *in situ* for six or seven days (see table). In some cases about 30 per cent. of a full dose of heavily filtered x rays has been given during two or three days immediately preceding the operation.

Theory.

It is known that if a transplantable animal tumour be given a certain dose of radiation *in vitro* such a tumour can no longer be transplanted. This is called the lethal dose; but a lethal dose cannot be administered to the whole of a tumour in the human larynx or in an animal because the effect on the surrounding tissues is too severe. By embedding radium in a growth, however, parts of it will receive such lethal dose. Now if an animal tumour which has received *in vitro* a lethal dose and not very greatly in excess of this be implanted; it is absorbed and immunity to subsequent implantations of the same tumour is conferred on the animal.

One of us has advanced the theory that the administration of the lethal dose to parts of the tumour *in vivo* renders the remainder of the growth more susceptible to moderate doses of radiation. Therefore radium needles or seeds may produce better effects than homogeneous irradiation of the tumour. When such a big dose is given

the tissues are very susceptible to bacterial invasion, so that the most meticulous care must be taken to avoid sepsis. This we have borne in mind throughout. Apart from this action the effect of the rays is selective, the cells of the growth being more vulnerable than the normal cells. The wonderful restoration of the vocal cords, so that it is not even possible to say which side has been diseased, is evidence of this.

Results.

Of the 15 cases treated, 14 were males and one a female, with ages varying from 45 to 67. Patients were selected who were not too old and who had a reasonable expectation of life. They can be grouped in three classes as follows:

1. Early cases in which the growth was strictly confined to one vocal cord and did not involve either the anterior commissure or the arytenoid cartilage—namely, cases that could have been treated by laryngo-fissure. In this class there were 8 cases; in 6 the growths entirely disappeared, and the patients have remained well for periods of from one to three years. In all of them the affected vocal cords have become freely movable. In some of them the vocal cords have recovered to such an extent that it is now almost impossible to detect on which side the growths were situated. Such results are far superior to those that can be obtained by cutting operations such as laryngo-fissure. The voice results are also excellent, the worst voices being better than the average obtained by laryngo-fissure. To demonstrate this feature a gramophone record of an exceptionally good voice following thyrotomy was prepared, and was no better than the good results obtained after radium treatment. In one case the growth diminished in size, but a stenosis of the glottis resulted, and the patient died suddenly eight months later of unknown cause. In the other case no real improvement resulted from the treatment.

2. Advanced cases, in which the disease was intrinsic but had crossed the middle line in front and involved the other vocal cord; these cases could only have been cured by some form of laryngectomy. There were five cases in this class. One patient has remained cured for four years; his vocal cords are freely movable and have a normal appearance, but the voice result is not as good as might be expected (record given). In one case, a male, the disease in the larynx entirely disappeared and the voice became normal again, but recurrence took place a year later in the tracheotomy wound, and he died eight months afterwards. In one case the growth shrank, but a stenosis of the larynx supervened, and later it recurred, and the patient died twenty-one months after operation. In one no improvement was noticed. One patient died of chloroform poisoning before the operation was completed. The voices in the two cases in this group in which the disease disappeared were infinitely superior to anything which can be obtained by means of an artificial larynx, and in one of them the voice became normal.

Many patients will even prefer an increased risk to life rather than lose their voice permanently. As far as our evidence goes radium treatment does not increase this risk.

3. Inoperable cases in which the disease had extended into the pharynx or through the laryngeal cartilages into the neck, with enlargement of the cervical glands. In this group there were two cases. In one case the growth entirely disappeared, and the glands, which contained carcinoma, were removed by operation. The larynx remained healthy for two and a half years, but afterwards the vocal cord became thickened again owing to recurrence. In the other case the growth shrank greatly, but the patient died after fifteen months, probably as the result of metastases in the mediastinum.

This last class of case can also be treated by heavily filtered x rays. In one patient, who has recently been treated by this means, an extensive ulceration involving the greater part of the cavity of the larynx has entirely healed, and the growth has already greatly diminished.

These results are encouraging, but obviously it is too early at present to be certain to what extent the cures are permanent. It is quite possible that radium will be found to be the best method of treatment in all cases of intrinsic

Case.	Sex	Age.	Symptoms (years).	Date of Operation.	Number of Needles.	Needles Retained (days).	Tracheotomy Tube Retained (weeks).	Cured (years).	Arrested (years).	Dead (years).	Larynx.	Cords.	Voice.
1	M.	45	4	1924	9	4	6	4½	—	—	Normal	Freely movable	Good.
2	M.	55	3	(1) 1924, Sept.	6	14	—	—	—	1½	Stenosis	Slightly movable	Hoarse.
3	M.	55	2	(2) 1924, Dec. 19.4	22 right 5 left	7½	Permanently	—	—	1½	Normal	Freely movable	Normal 1 year.
4	M.	55	½	1925	13	6	Permanently	—	—	½	Stenosis	Fixed	Hoarse whisper.
5	M.	67	7	1925	7 right 5 left	6	Permanently	—	—	2	Stenosis	Fixed	Feeble.
6	F.	63	3	1925	7	7	4	3½	—	—	Normal	Freely movable	Normal.
7	M.	47	½	1925	9	7	14	3½	—	—	Normal	Freely movable	Normal.
8	M.	53	3	1925	8	6½	16	—	2½	—	Normal	Freely movable	Normal.
9	M.	52	1	1925	7	7	6	3	—	—	Normal	Freely movable	Normal.
10	M.	55	½	1925	11	4½	Permanently	—	—	1½	Stricture	Fixed	Feeble.
11	M.	50	2	1925	8	4½	6	2	—	—	Normal	Freely movable	Normal.
12	M.	61	½	1927	9	6	8	1½	—	—	Slight thickening	Fair movement	Much improved.
13*	M.	53	1	1927	—	—	—	—	—	—	—	—	—
14	M.	63	½	1927	7	7	14	½	—	—	Slight thickening	Freely movable	Hoarse.
15†	M.	53	1	1927	8	7	6	—	—	—	—	—	—

* This patient died under the anaesthetic.

† The patient shows no improvement.

carcinoma of the larynx. There seems to be no doubt that in the early cases in which the disease is strictly localized to the vocal cord a high percentage of cures can be expected, and the after-results are far superior to those which have been obtained by operation. In a favourable case the vocal cord may become absolutely normal again and freely movable. The voice may be completely restored (6 cases), and the larynx does not appear to be weakened in any way.

In advanced cases there seems no doubt that radium should always be tried before laryngectomy. If the disease is not completely eradicated within three months, or if any induration remains, the radium treatment should either be repeated or an operation such as laryngectomy performed. Even in inoperable cases it seems probable that with careful selection some relief of symptoms and some prolongation of life may be obtained by this method.

Lantern slide diagrams of the condition of the vocal cords before and after the treatment were shown. Gramophone records, which had been specially prepared free of cost by the kindness of the Columbia Graphophone Company, were used to illustrate the voice results, and for comparison the records of two cases treated by the operation of laryngo-fissure were included.

Case Histories (July, 1928).

Case 1.—Extensive growth involving the right side of the larynx, the anterior commissure, and the front of the arytenoid cartilage; the greater part of the glottis was occluded. The patient was seen in consultation with Sir StClair Thomson and told that the disease could only be treated by complete laryngectomy or by radium needles. He was warned that radium treatment was still in its infancy and that we had no previous experience whether it would succeed in his case. After careful consideration he refused to have a laryngectomy performed and decided to try the radium treatment. Six months later he was again seen by Sir StClair Thomson, who remarked that "If we can see him this time next year without a recurrence it will be a splendid case." Now, nearly four years later, he has a perfectly normal larynx with freely movable cords, and a good voice.

Case 2.—The growth had been removed three years previously by laryngo-fissure. There was an extensive recurrence involving the right half of the larynx. Again the choice lay between complete laryngectomy and radium, and he was strongly advised to have the former. As he absolutely refused to undergo laryngectomy, radium needles were inserted. The growth was found to have extended through the thyroid cartilage into the tissues of the neck. Twenty-eight needles were inserted on the two sides and the growth almost entirely disappeared, leaving a moderate stenosis in the subglottic region. His health gradually failed, and he died fourteen months after the operation from chest troubles, which were probably due to secondary glands in the mediastinum. Although his larynx never became normal, there was at no time any active recurrence of the growth in it or in the neck.

Case 3.—A medical man with an extensive growth on the right side of his larynx involving the anterior commissure. To cure the condition a complete laryngectomy would have been necessary, but the operation was refused, and fourteen radium needles were

buried in the two sides of the larynx. All signs of the disease in the larynx disappeared rapidly. In two months the larynx had a healthy appearance, both cords moved freely, and the voice was absolutely normal. Twelve months later he suddenly became hoarse again, and a hard swelling was discovered in the position of the tracheotomy wound. It was explored and found to be a malignant growth surrounding the trachea, and inoperable. His health rapidly failed, in spite of external radium treatment, and he died twenty months after his operation from a recurrence in the neck, the larynx having remained healthy throughout.

Case 4.—Apparently an early case with a localized hard fibrous growth confined to the right vocal cord. The disease did not respond well to radium treatment. Subglottic stenosis of the larynx resulted, necessitating a permanent tracheotomy tube. The patient died unexpectedly eight months later of heart failure, and a *post-mortem* examination showed that there was a mass of scar tissue below the vocal cords containing small islands of carcinoma cells. It is probable that in this case the needles were not inserted low enough to treat the disease in the subglottic space properly.

Case 5.—An extensive disease of long duration involving both sides of the larynx. The growth responded badly to radium treatment and a subglottic stenosis resulted. The patient's general health and voice were poor, and he died two years later.

Cases 6 and 7.—In each instance the growth was an early one and strictly confined to one vocal cord. Good results were obtained. The larynges became healthy again, with freely movable cords and normal voices.

Case 8.—A very extensive carcinoma involving the whole of one side of the larynx. Suspicious glands could be felt in the same side of the neck. Previously he had been treated for twelve months by continued small doses of x rays. Eight radium needles were buried and all traces of the growth entirely disappeared, leaving a healthy larynx. The glands were removed later and found to be infected with carcinoma. His larynx, voice, and general health have remained normal for nearly three years.

Case 9.—A localized growth involving the left vocal cord and anterior commissure. The cord moved sluggishly; the voice was husky and weak. Operation by Mr. Rose. After treatment the growth rapidly disappeared and the larynx assumed a healthy appearance. The cord now moves freely, and the voice is normal.

Case 10.—This patient had suffered from syphilitic laryngitis for many years, and it was doubtful when the carcinoma started. The disease was very extensive and could only have been treated by complete laryngectomy. Radium needles were buried, but the growth did not improve with the treatment, and an external fistula developed which ultimately became infected with the disease. Death occurred fourteen months after the operation.

Case 11.—A localized growth of one vocal cord, which disappeared immediately after radium treatment. The vocal cord now has a healthy appearance and moves freely. The voice is normal.

Case 12.—An extensive growth involving the whole length of the right vocal cord, with marked swelling of the ventricular band. Two-thirds of the glottis was occluded by the growth. After treatment the swelling subsided slowly. The vocal cord is now slightly thicker than normal, but moves freely, and the voice is strong.

Case 14.—An extensive growth involving the whole length of the left vocal cord, the anterior commissure, the base of the epiglottis slightly, and the subglottic region. Seen by Sir StClair

Thomson, who agreed that the growth was too advanced for laryngo-fissure, and that the patient was not strong enough for laryngectomy because he had an enlarged liver and had suffered from haematemesis. Radium needles buried under a local anaesthetic. The growth rapidly shrank and had entirely disappeared in three months. The cord became freely movable although the edge was slightly swollen by oedematous fringes. He now has a loud, hoarse voice.

Case 15.—A fairly extensive growth involving the whole of the right vocal cord with infiltration of the ventricular band. So far the growth has not responded to radium treatment, and a further operation will probably be necessary.

EXAMINATION OF THE EYES AND EYESIGHT OF YOUNG CHILDREN.*

BY

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THE subject of this paper forms, I imagine, part of the work of all of us here, whether we be ophthalmologists, school medical officers, or general practitioners interested in eye work. Much has been written about the examination of children in elementary schools. Statistics dealing with very large numbers have been published by Mr. Bishop Harman¹ and Dr. James Kerr,² to whose useful work we are much indebted. It is the examination of young children, including those below school age, about which I wish to speak, and I should like to insist that my remarks apply to the children of all classes, and not merely those attending school clinics. For this subject forms an important part of what we have been discussing†—"visual efficiency" affects "working ability" no less in childhood than in after years; in some ways, indeed, more so. Vision being our most important special sense, it is possible for a child's whole "outlook," in the widest sense of the term, to be affected by his sight.

There are several factors peculiar to childhood which make a routine examination advisable. These factors ought to be more appreciated by the medical and teaching professions; for, roughly speaking, it is only those young children attending council schools who get a routine examination of their eyes. Young children seldom complain of their sight. They know no better. Eyestrain and the mental fatigue produced thereby are supposed to be part of the irksomeness of doing lessons. As I have already suggested, a child's character, health, and habits are liable to be affected by its sight. The "beautiful little needlewoman" or the "wonderfully studious boy" may be the result of short sight. The child who does not see across the room clearly, and who can scarcely see at all down the street, has few distractions from his books and toys. Such children who are taught in small dames' schools, home schools, preparatory schools, or by governesses do not get noted as do the children in the large classrooms of the council schools where a blackboard is in daily use. There is much need for propaganda on this matter. So, too, a rebellious hatred of lessons or so-called stupidity may be the result of a serious defect of vision. In order to read, a young child has to see every single letter, and this at a time when the eye is not fully developed, is still growing, and is ordinarily long-sighted. Children with their great power of accommodation may, for a time at any rate, disguise a big defect, and such children will pass an examination which merely depends on the reading of test types.

As well as the growth of the eyes, we have to remember the development of their functions. Binocular vision, or bifoveate vision, should become well established within the first few years of life, but this faculty, in association with the proper muscle balance of the eyes, has to be

acquired. Like walking, it is easily upset or retarded in infancy.

Variations from the normal, therefore, as regards fixation, muscle balance, and binocular vision, are the most important clues we have which lead us to discover defects of vision in early childhood. From this it follows that we shall have to distinguish between the spurious squint of the young infant and the incipient squint of the older child. From our clinical experience we know the importance of early treatment; after the seventh or eighth year we know that treatment of such defects often fails in the desired result, which is to obtain complete binocular vision. We bear all these facts in mind and also do not forget our general medical knowledge of children. In this way the examination by an ophthalmic surgeon may not infrequently be the starting point of great improvement in the child's health, mental and physical.

Certain simple details of a routine examination³ carried out on these lines may possibly be of help to some. The examination should be made in a large room which can be easily and quickly darkened. Good daylight is only needed at the place where the surgeon and child sit. Test types are artificially illuminated by standard illumination, using daylight lamps. When a number of children are to be seen, the brighter and older ones are first examined, whilst the others observe the proceedings without, however, being able to see the test objects. The child is seated to the left of the examiner, and behind the child is a lamp for retinoscopy. The child is allowed time to get accustomed to the surgeon's presence whilst the latter enters details. The surgeon then rapidly looks for external signs of inflammation, etc. The lids are carefully examined. Definite blepharitis is, of course, well known to be a suspicious sign of eyestrain, and the cleaner the child the more suspicious is this sign. The presence of quite inconspicuous scales at the roots of the eyelashes, apart from any redness, is, I think, quite as important, and more often than not indicates an error of refraction requiring treatment. The condition is a slight seborrhoea due to over-secretion, the result of reflex irritation produced by eyestrain. The presence of follicles inside the lower lid makes the examiner suspect the general health or hygiene.

Next, the movements of the eyes are tried. With small children the retinoscope mirror rarely fails to attract, and for a screen to cover one or the other eye the examiner uses the thumb of his left hand placed on the child's head. I need not further detail this examination to an audience of ophthalmic surgeons, except to remind you that, during the various movements of the eyes, opacities of the cornea or in the pupil area should be noted. If the lids, fixation, convergence, and other movements and muscle balance, as tried by the above methods, all appear normal and the cornea and pupil areas are clear, the child, being an infant, has passed his test.

In slightly older children, the toddlers of 3 and 4 years, the vision is further tested by pictures of familiar objects. Little children will whisper the names to a friendly examiner as the pictures are pointed out by a nurse. If the child is reading—if one may so describe it—the pictures well, each eye singly may be tried. Other children who can scarcely be persuaded to read the pictures have the eyes alternately covered. If the child dislikes having one eye covered and does not mind the other eye being covered, this latter eye should be suspected of being defective. Other things being normal, I do not think that at this age any further test of each eye separately is necessary. Such pictures are not drawn to exact scale like those of Snellen's type and the "E" test, but a small child who "reads" the smaller objects freely and easily has sufficiently good vision for his age. No preliminary training is required and there is very little mental fatigue. A picture book may be first shown to the child to encourage him to talk, and then he should be told to look in the distance. I have several times spotted myopia and other bad defects at an early age when an otherwise bright child has appeared to take no interest in the *distant* pictures. Although high myopia is relatively rare in infancy, anyone who does much children's eye work not infrequently meets with it. I have notes of many cases of high myopia in early childhood,

* A paper read in the Section of Ophthalmology at the Annual Meeting of the British Medical Association, Cardiff, 1928.

† See summary of the discussion on visual efficiency and working ability, *British Medical Journal*, August 4th, p. 205.