

A discussion on sporadic cretinism in this country and its treatment / by W. Rushton Parker [and others]. Tendency to bending of the bones in cretins under thyroid treatment / by T. Telford-Smith.

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A DISCUSSION ON
SPORADIC CRETINISM IN THIS COUNTRY
AND ITS TREATMENT.

(With Illustrations and Charts).

BY

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SECTION OF DISEASES OF CHILDREN.

*At the Annual Meeting of the British Medical Association in
Carlisle, July, 1896.*

TENDENCY TO
BENDING OF THE BONES IN CRETINS
UNDER THYROID TREATMENT.

(Illustrated).

BY

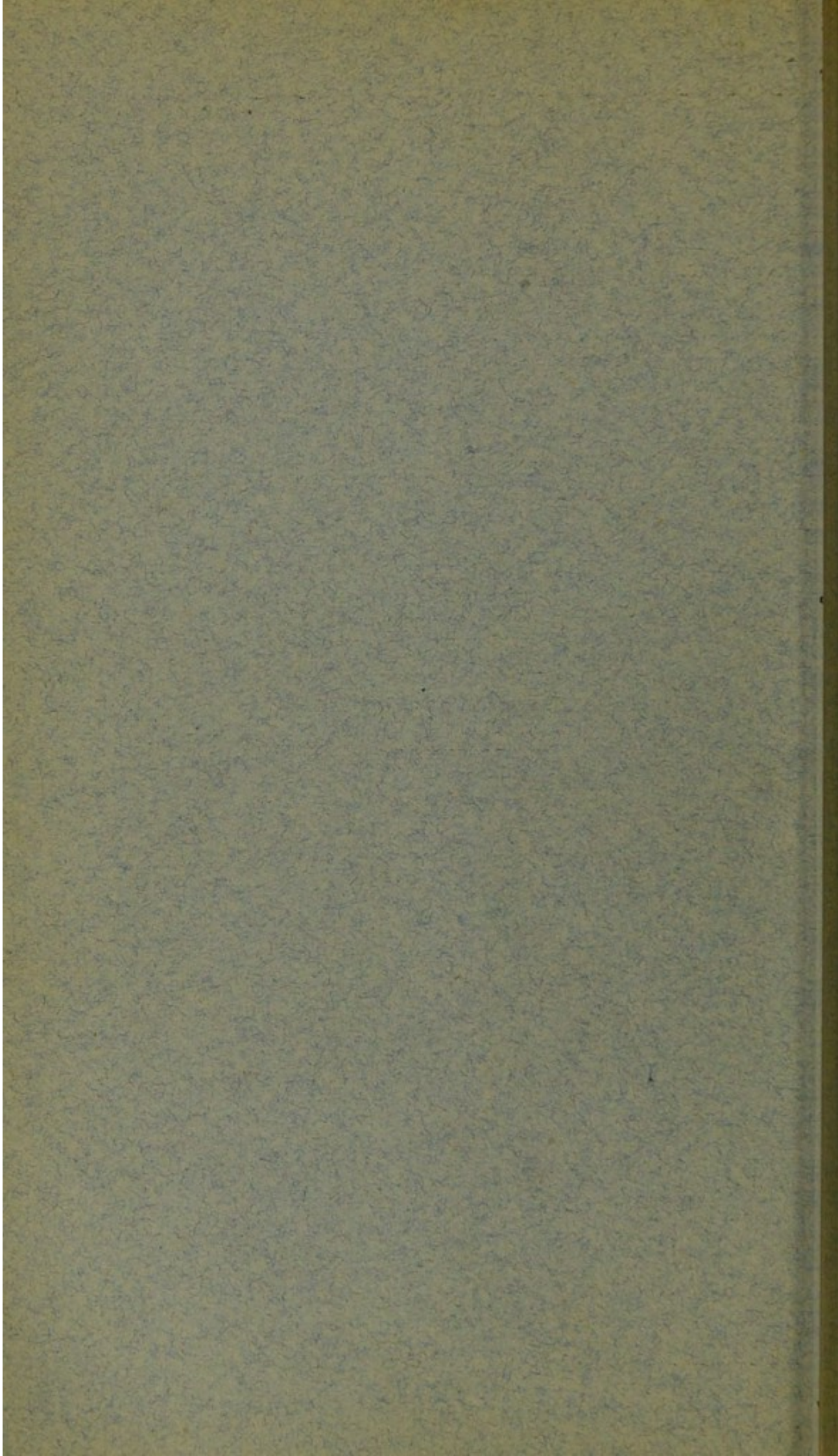
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A DISCUSSION
ON SPORADIC CRETINISM IN THIS COUNTRY
AND ITS TREATMENT.

LANTERN EXHIBITION OF CRETINS ILLUSTRATING
THE EFFECTS OF THYROID TREATMENT.

I.—W. RUSHTON PARKER, M.A., M.D.,
Honorary Surgeon, Kendal Hospital.

DR. PARKER, while exhibiting by the aid of a lantern about sixty photographs of cretins upon a screen, confined his remarks almost entirely to demonstrating the chief points of interest in the various pictures as they passed before the eye. About forty of these represented two different views of as many cretins, one before and one after treatment with thyroid



(Aged nearly 2 years.)



(After 1 year.)

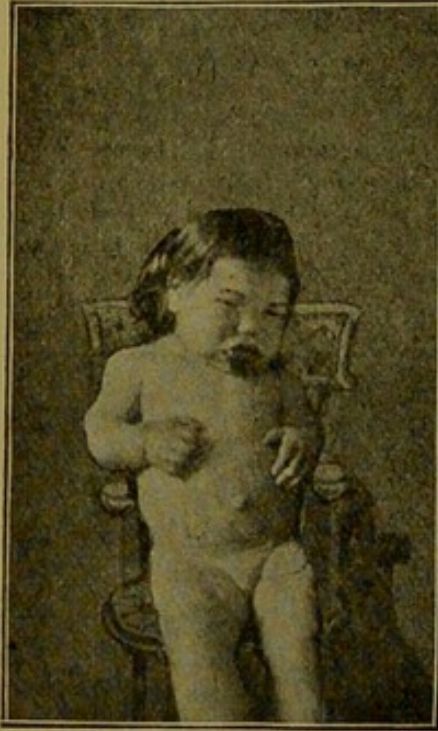
CASE 1.—Under the care of Dr. J. Finlayson, Glasgow. Symptoms began in very early infancy, and, when the child came under observation at 1 year and 10 months, she was a typical cretin; after 13 months' treatment by thyroid extract she appears as a normal child, in whom there is no obvious sign of cretinism.

extract. The cretins varied from 1 day to 36 years of age, and about 60 per cent. of these (and of fifty other cases collected) were female. The same remarkable results were seen in most of the pictures exhibited, namely:

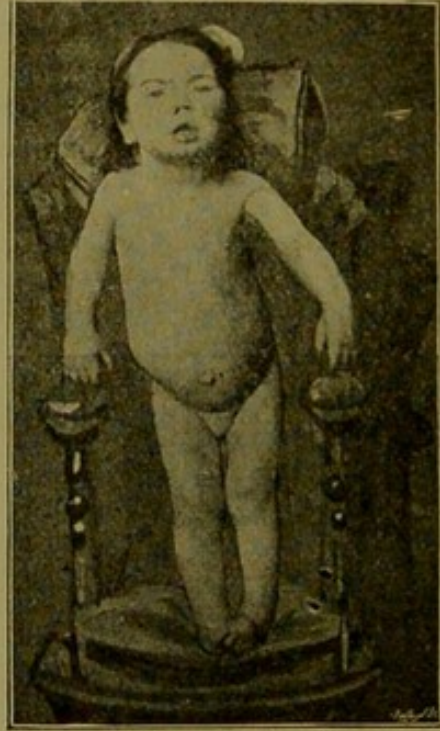
1. A great and rapid diminution of bulk, due to absorption of myxœdematous deposits, seen especially in the collapse of

the protruding abdomen; in the spontaneous reduction of umbilical herniæ; in the recession of the previously swollen tongue behind the teeth; in the disappearance of baggy swellings under the chin, above the collar bones, outside the nipples, and elsewhere; in the thinning of the lips; and in the disappearance of the dropsy-like puffiness of the face, limbs, and other parts of the body.

2. A great and rapid increase in physical development, shown especially by a rapid growth of several inches in height, even in cretins of from 20 to 30 years of age, whose stature had been nearly or quite stationary for many years previously; also by the replacement of the coarse sparse hair by a more abundant and finer growth; by the eruption in



(Age 2½ years).



(After 8 months).

CASE 2.—Under the care of Dr. G. S. Middleton, Glasgow. Symptoms namely, puffiness of face, protrusion of tongue, etc. were noticed in very early infancy; at 2 years of age she was greatly swollen in face, trunk, and limbs; when she came under treatment at 2½ years of age she was quite imbecile, could not walk, could not stand without support, had still an open anterior fontanelle, and had two upper and two lower incisors. Within five months the girth of the neck, belly, and limbs had diminished by from 1 to 2 inches; she had eight incisors and four molars; and a month later, though she had not yet walked or spoken, she was a healthy-looking, chubby child.

quick succession of teeth which had been long overdue, as in cases where the milk teeth still persisted at 20 years of age; and by a substantial increase of body weight, after the initial loss from absorption of myxœdematous deposits.

3. A striking diminution of several hideous deformities, especially of the lordosis in the lumbar spine, of the bulky head, of the ugly sinking of the bridge of the nose, and sometimes of the rickety curvatures of the legs. Many of the pictures, however, showed little or no improvement in the deformity of the legs, owing to the softening of bones produced by thyroid extract and to the fact that the majority of cretins were allowed an undue use of their legs during treatment.

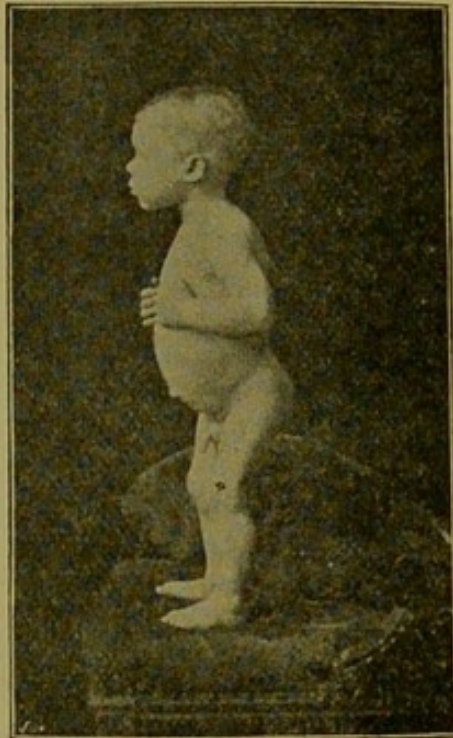
4. A rapid and very striking increase of intelligence occurred, as was well seen by comparing the dull, stupid, heavy, listless, often idiotic countenance before treatment with the bright, cheerful, pleasing expression which soon took its place.

It was stated that no other disease existed the treatment of which lent itself so admirably to photographic display, and that the treatment of cretinism by thyroid extract was one of the greatest triumphs of modern therapeutics.

Dr. Parker added that there appeared to be at least three pathological varieties of cretinism. The first variety is embryological, due to non-development or partial development of the thyroid body, and analogous to any other mal-



(Aged 6 years).



(After 5 months).

CASE 3.—Under the care of Dr. J. Laurie, Greenock. He came under at 6 years of age, when he stood 30 inches high, weighed $33\frac{1}{2}$ lbs., was covered with livid ulcerating patches, lay in an apathetic state merely eating and sleeping, and was unable to speak. Within a week, under thyroid extract, he sat up, played with toys, and began to talk; the skin disease gradually vanished, and within the five months' interval between the two photographs he lost $6\frac{1}{2}$ lbs.

formation from deficiency, such as absence or arrested development of uterus, ovaries, testicles, etc., acardia, acephalism, anencephalism, etc. A second variety is due to atrophy of the thyroid parenchyma, occurring occasionally after some serious illness in childhood, and analogous to the atrophy of the testicles after mumps. A third variety is due to goitrous degeneration of the thyroid body. Though the etiology and pathology of these varieties are quite distinct, the symptoms appear to be identical, and to be due solely to the degree to which the function of the thyroid body is lost, and the youthfulness of the patient in whom the loss of function occurs.

Four of the long and interesting series of cases dealt with

by Dr. Rushton Parker have been selected for illustration. The following are brief notes of these cases :

The four sets of illustrations all illustrate the commonest



(Aged 7 years).



(After 6 months).

CASE 4.—Under the care of Dr. J. Stewart, Batley. Symptoms (swollen lips, protruding tongue, inactivity) were observed at 5 months. He came under treatment in a state of absolute imbecility at 7 years, unable to walk or talk or feed himself, very dirty in habits, and measuring 30 inches in length. Within six months, under thyroid extract, he grew 5 inches, lost all myxœdema, became lively and attractive, and within nine months he could walk, talk, and feed himself, was full of fun and mischief, played, and was not in any way peculiar, physically or mentally.

variety of sporadic cretinism, namely, that in which the symptoms commence in very early infancy, and are doubtless due to congenital absence of the thyroid gland.

II.—T. TELFORD-SMITH, M.A., M.D.,

Medical Superintendent, Royal Albert Asylum, Lancaster.

THE THYROID TREATMENT OF CRETINISM AND IMBECILITY IN CHILDREN.

THE marked and rapid improvement produced in cases of sporadic cretinism during treatment with thyroid gland preparations has been vividly brought before us by the admirably selected series of photographs of cases exhibited by Dr. Parker.

These pictures, showing as they do the condition of the cases before and after treatment, help us to realise, in a way no mere verbal description could, the almost marvellous change that takes place in these children, not only in physical condition, but also in mental state; for I think we can see by the mere alteration in the expression of the faces that the mind as well as the body has been, as it were, awakened. We not only get an increased and improved metabolism, but we

get, varying with age, a restarting of growth and development which raises these cases from a condition of permanent infancy to one which tends to approach the normal.

There are, however, among idiots generally many cases showing defects, both of body and of mind, of a more or less similar character to those found in cretins, so that, to those at least who have to deal with large numbers of idiots, the wider question is inclined to occur: Does defective function of the thyroid enter as an appreciable factor into the causation of idiocy? and, if so, may not some degree of improvement, similar to that produced in cretins, be looked for in other cases during the administration of thyroid preparations. Bourneville has shown, by a table he published of the weights of the thyroid in different cases of idiocy, that there is a considerable variation in the size of the gland. May there not also be variation in the completeness with which it fulfils its functions?

CHARTS SHOWING EFFECT OF THYROID TREATMENT ON THE TEMPERATURE IN A CASE OF MONGOL IDIOCY AND IN A CASE OF SPORADIC CRETINISM.

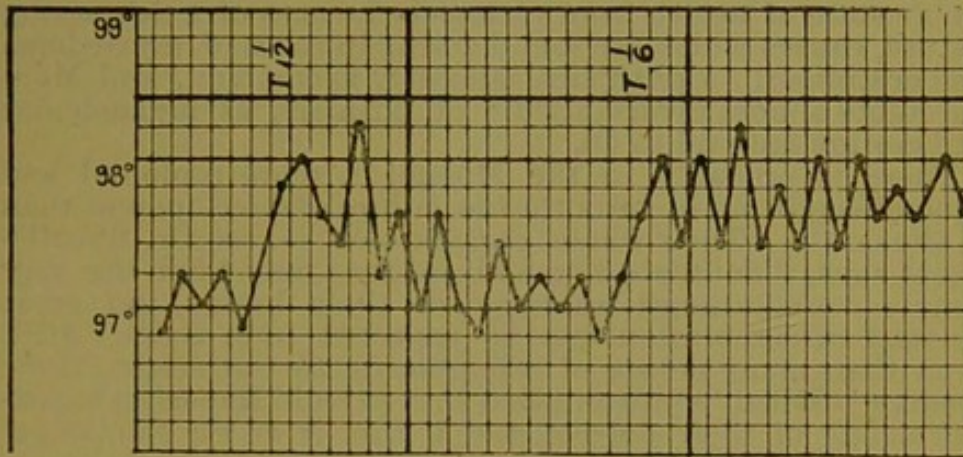


CHART I

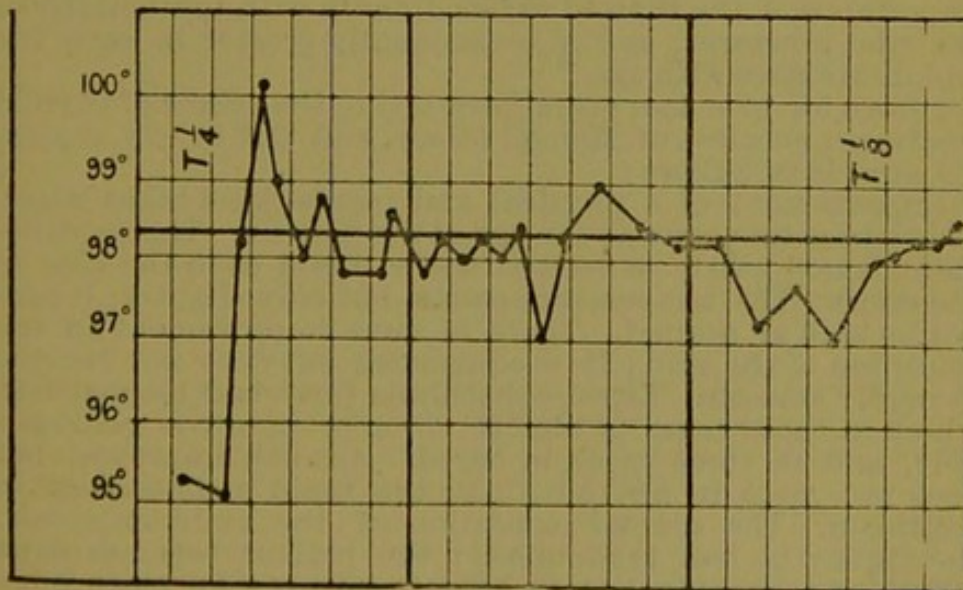


CHART II.

Chart I, case of Mongol type, male, aged 18. Chart II, sporadic cretin, at the commencement of treatment, showing the rise of temperature which followed the administration of a quarter of a lobe of fresh sheep's thyroid on March 27th, the maintenance of a relatively high temperature (as compared with the temperature of 95° to 96° before treatment) for eleven days, a decline, and a second rise of temperature after the administration of one-eighth of a lobe on April 13th.

Idiots belonging to the so-called Mongol type are those who most nearly resemble the cretin, both in physical aspect and in mental character. In idiots of this type we get the stunted growth, the dull heavy expression, with open mouth and thick lips; the slow deliberate movement, and hoarse, guttural, and monosyllabic speech; the mental apathy, and lack of spontaneity; the sluggish circulation and sensitiveness to cold. A thickened condition of subcutaneous tissue is often found, with dulled cutaneous sensibility. The skin is coarse and dry, the hair short and thin. First and second dentition are delayed. As far as palpation enables one to judge, the thyroid gland is subnormal in size. Pseudo-lipomata I have not found. The temperature is always subnormal, ranging between 96.5° and 97.5° .

This type of idiocy occurs in about 5 per cent. of cases, and there are at present in the Royal Albert Asylum 19 Mongol idiots in a population of 560. The etiology of this type is probably complex. These cases are frequently the last children of large families, or the mother has been in a feeble state of health from various influences of a depressing nature, causes which are found acting in cases of myxœdema and cretinism. A phthisical ancestry is common, and Mongol idiots almost invariably die of phthisis, as myxœdemes and cretins are said to do.

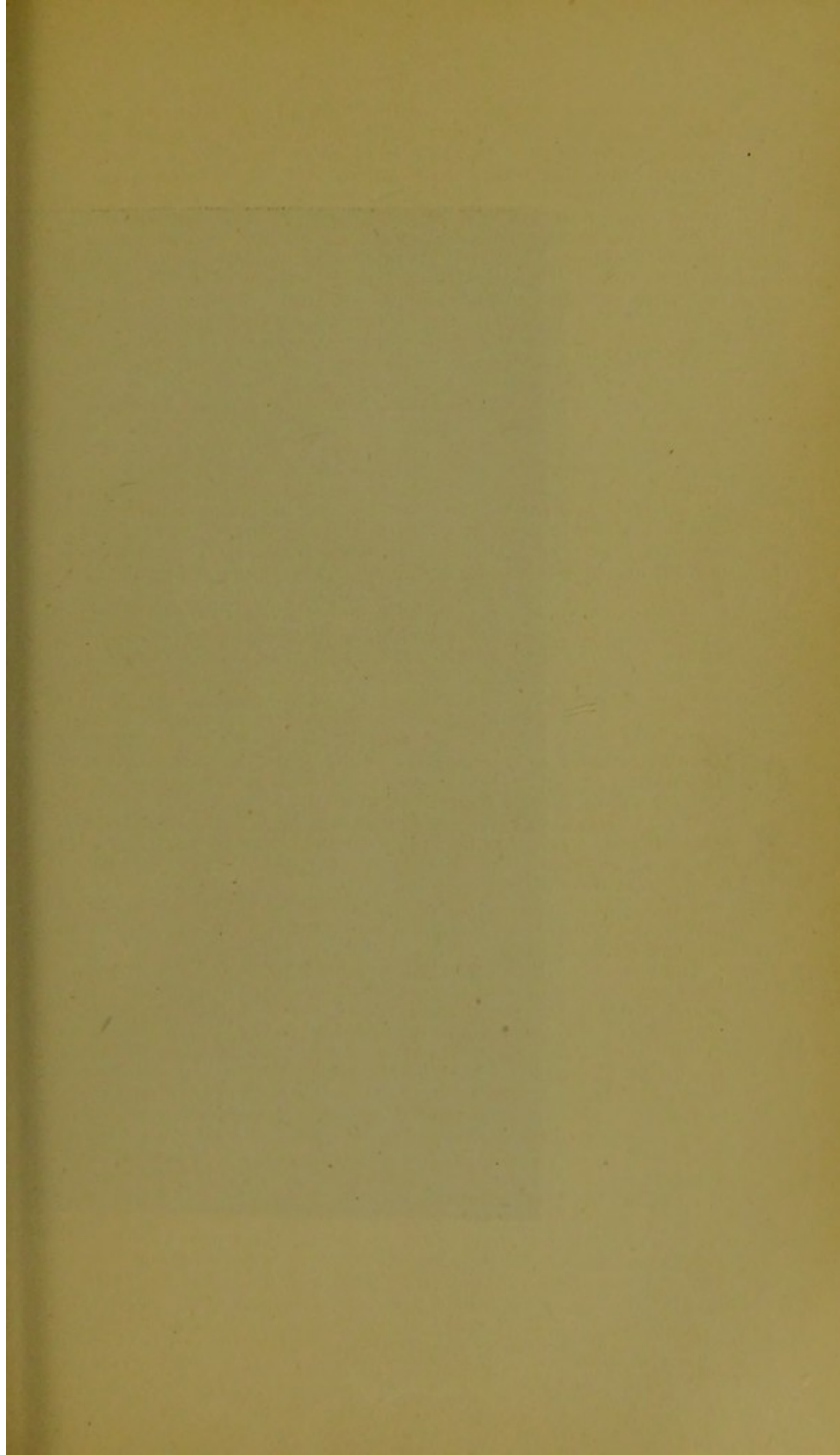
There is probably in the Mongol a more profound and general condition of intrauterine failure of development than in the cretin. Their whole organisation is, as Dr. Shuttleworth says, "unfinished"; and, judging only from the very simple convoluted anatomy of their brains, no great amount of cerebration can be expected from them. Still, from their many points of resemblance to the cretin, there seems a justifiable presumption that thyroid imperfection exists as one of their defects, and if this is so we should get some reaction during thyroid treatment.

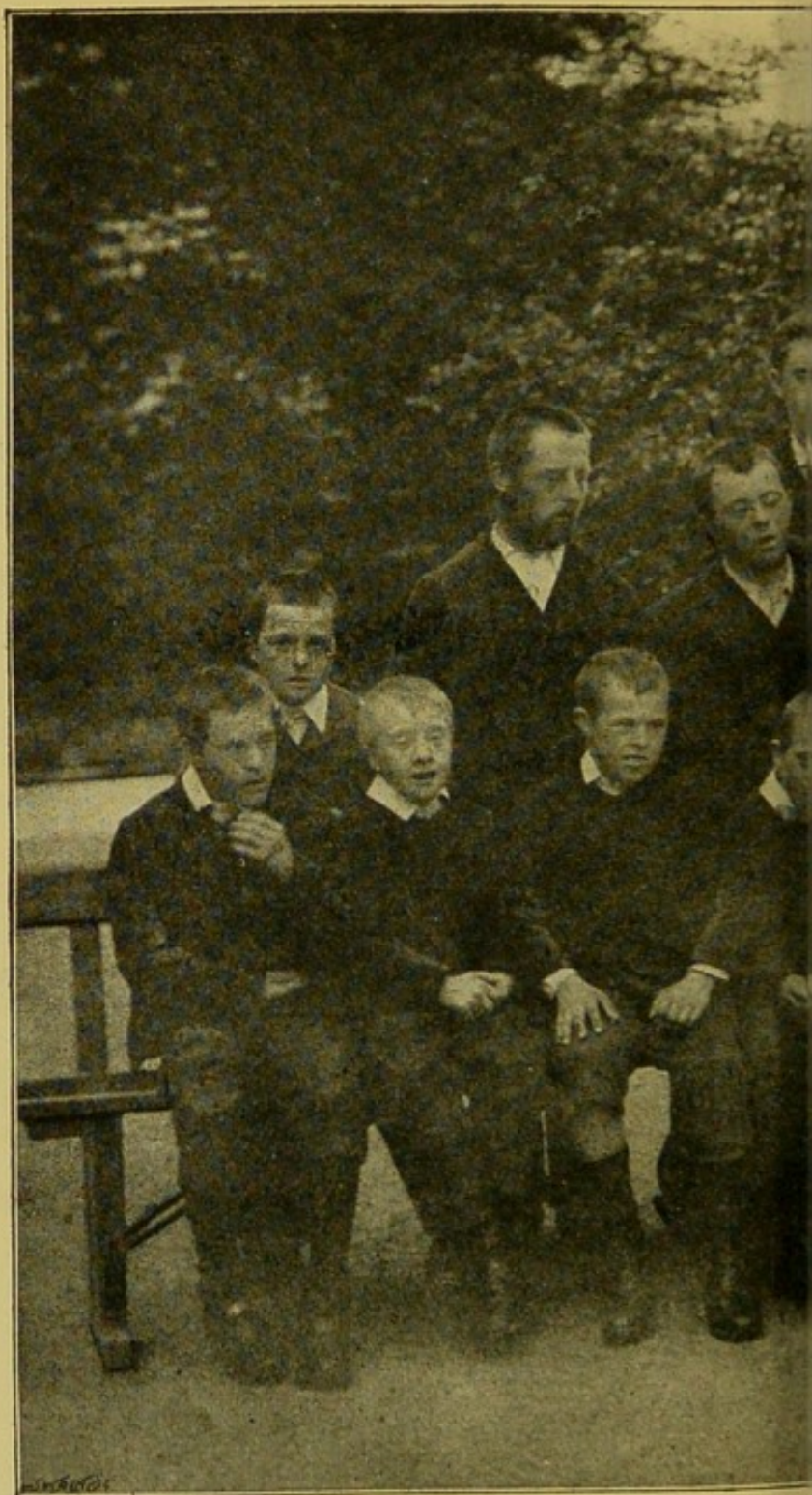
We must remember that, as Horsley says, "the metabolic importance of the thyroid varies directly with the activity of the vital processes, and is consequently greater in early life and diminishes with age."¹

I have for over two years been trying the effects of thyroid treatment on cases of Mongol idiocy, and, put briefly, my experience is as follows:

Improvement of a physical and mental kind takes place. This varies inversely as the age of the patient. The improvement is not nearly so marked nor so rapid as in the case of the cretin. The temperature reacts, but only slightly; it cannot be kept at normal. There is some improvement in the condition of the skin; it desquamates but does not become normally smooth. Tarsal ophthalmia (marginal blepharitis), which in these cases is almost chronic, improves considerably, and in some cases is cured. Growth improves, but does not react in anything like the rapid manner seen in cretinism. The mental condition of the child improves; the apathy is less pronounced; the patient becomes more active and spontaneous in his movements; he plays more like other children, and joins in the simple amusements or employments going on around him; he even works voluntarily. His speech is less thick and guttural, and he talks

¹ *Remarks on the Function of the Thyroid Gland*, by Victor Horsley, F.R.C.S., F.R.S. BRITISH MEDICAL JOURNAL, February 6th, 1892.

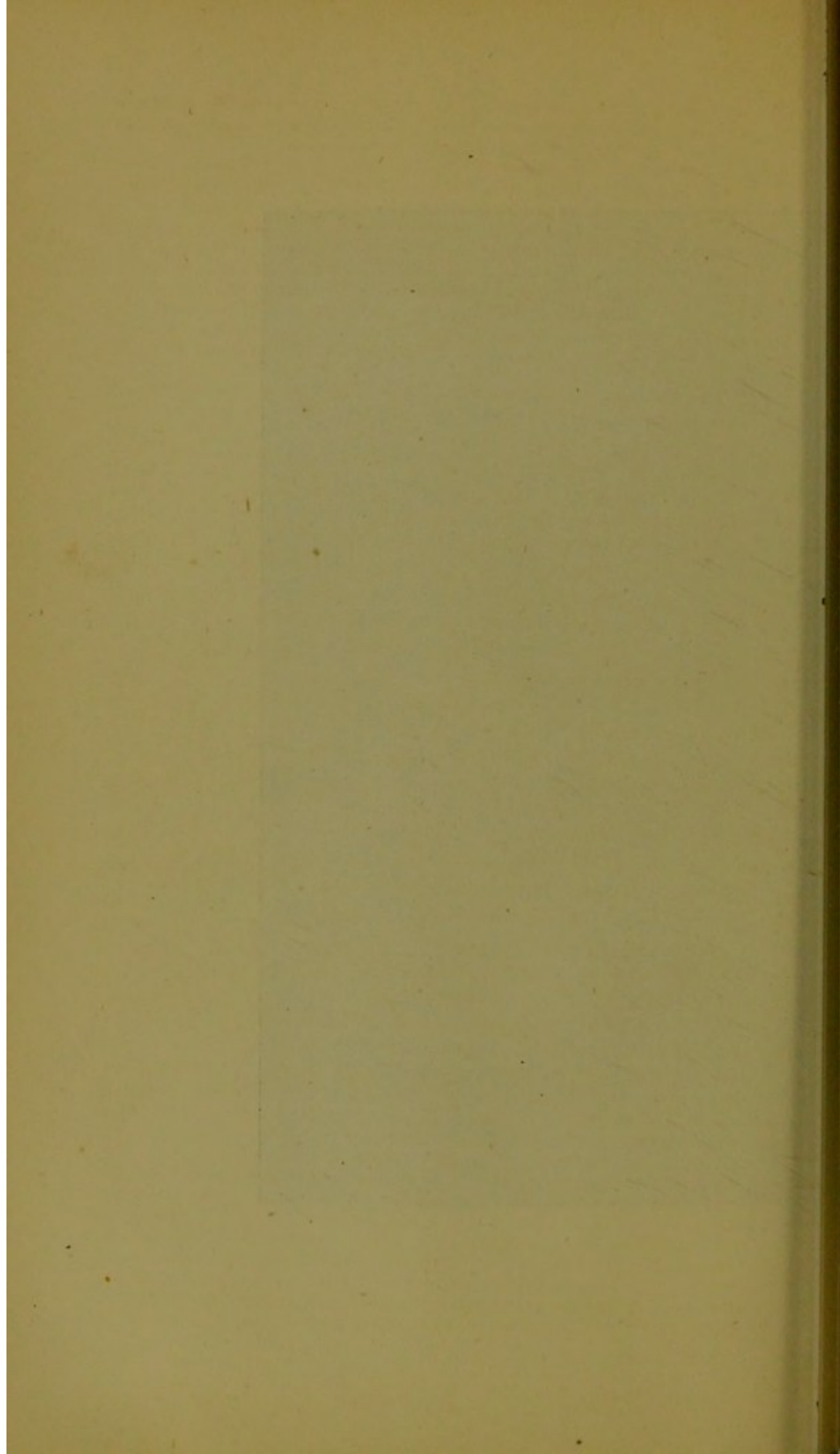




Group



ngol Type



and chatters to a more normal extent. His mental reflexes all seem more active, and there is a decided advance on the patient's previous rather vegetable existence.

I have tried the effect of thyroid treatment in some other cases of idiocy, cases in which the only resemblance to the cretin has been in the condition of mental apathy and disinclination to movement or speech, and where there has been evidence of diminished metabolism as shown by a constantly subnormal temperature, a condition, however, which is common in idiots. In these children of 8 to 9 years of age, with a daily dose of one 5-gr. tabloid, there has been a visible improvement, speech is more spontaneous, and apathy is less. The temperature has risen about half a degree, but is still subnormal.

There is one practical point in the course of treatment of cretinism by thyroid gland which has been brought out by some of Dr. Parker's slides, and which I have found in my own experience—that is, that the growth of the skeleton becomes so rapid that some softening of the bones takes place, so that the leg bones are liable to become bent if the child is allowed to go about. I have found extreme bowing of the legs to take place during treatment, and I have had to place the patient in bed, and I would warn those treating cases to be on their guard against this complication.

In conclusion, I think that in cases of Mongol idiocy thyroid treatment should be pursued, the earlier the better. Caution should be observed in the dose, as the heart is undersized and weak in these patients. A small dose administered daily with dinner, and increased very carefully, will act best (from half to three 5-gr. tabloids daily). The temperature, weight, and state of general nutrition should be watched in all cases. In many cases of mental apathy and disinclination to movement or speech in idiot children not otherwise cretinoid, I think treatment with thyroid is well worth a trial.

If in these children we can, even to a small degree, improve cerebration, and make movement more spontaneous, the work of training them and developing them in an educational manner is considerably assisted.

III.—JOHN THOMSON, M.D., F.R.C.P.Edin., Edinburgh.

THE VARIATIONS IN, AND THE LIMITS OF, THE IMPROVEMENT OF CRETINS AT DIFFERENT AGES UNDER THYROID TREATMENT.

ONE of the next things wanted in our study of the thyroid treatment of cretinism is a clearer idea of the amount and exact nature of the improvement to be hoped for. Now, the improvement of cretins under thyroid is a much less simple thing than that of ordinary myxœdematous adults. In cretins the treatment not only clears away the characteristic deformity and dulness, but also lets loose on the patient some at least of the natural impulses of growth which were in abeyance in his former thyroidless condition. This latent capability of reacting to thyroid treatment by a renewed growth and development seems to be present in all cretins, but its degree varies enormously, and is apparently in direct proportion to the youth of the patient when the treatment is

first begun. It is very strong in children, less so in adolescents, and comparatively slight in those who have reached adult age.

Such data as are wanted must be gleaned from the combined experience of a number of observers. I think I can best introduce the subject to your notice by giving you (for what they are worth) a few facts which I have observed while studying five cretins whom I have had under treatment for periods varying from 2 years and 3 months to 3 years and 7 months. My cases naturally fall into three groups:

1. One child, a girl,¹ aged 4 years and 11 months.
2. Two adolescents—a boy² aged 18 years and 8 months, and a girl aged 22 years and 1 month.
3. Two adult women, aged respectively 36 years and 5 months and 39 years and 9 months.

I shall speak first of four points relating to the bodily change, and shall then consider very briefly the mental improvement.

1. GROWTH OF THE SKELETON.

Table of Yearly Growth (in inches) of Five Cretins.

	Sex.	Age.	1st Year.	2nd Year.	3rd Year.
Child	F.	4.11	5 $\frac{3}{4}$	4 $\frac{1}{4}$	2 $\frac{1}{2}$
Adolescents.....	M.	18.8	4 $\frac{3}{4}$	2 $\frac{3}{4}$	1 $\frac{1}{2}$
	F.*	22.1	2	(?) 1	(?) $\frac{1}{2}$
Adults	F.*	36.5	$\frac{3}{4}$	$\frac{5}{8}$	—
	F.	39.9	1 $\frac{1}{2}$	$\frac{1}{2}$	—

Those marked * had severe lateral spinal curvature, which increased under treatment.

The rate and amount of the increase in height—indicating, so far, the total growth of the skeleton—is the first point. On looking at this table, we see that this was in inverse ratio to the age of the patient and to the stage of the treatment.

The child grew much more than the adolescents, and the adolescents much more than the adults.

The relation of the growth to the stage of the treatment is best illustrated by the curve of growth of the child (see Chart). Here we see that the patient, who was 7 inches below the average height of a girl of her years at the beginning of the treatment, shot up to the extent of 5 $\frac{3}{4}$ inches the first year and 4 $\frac{1}{4}$ inches the second, but that since she has approached the normal height she has been growing at a slower, more natural, rate. It is interesting, as we shall afterwards see, to compare this curve with the course of her mental improvement.

2. DISTRIBUTION OF THE GROWTH.

In the child, the degree of growth of the different parts of the body seemed in all respects normal. In the older cretins, however, there were certain marked peculiarities. For instance, the hands and feet in all the four were very characteristically broad and dwarfed at the beginning of the treat-

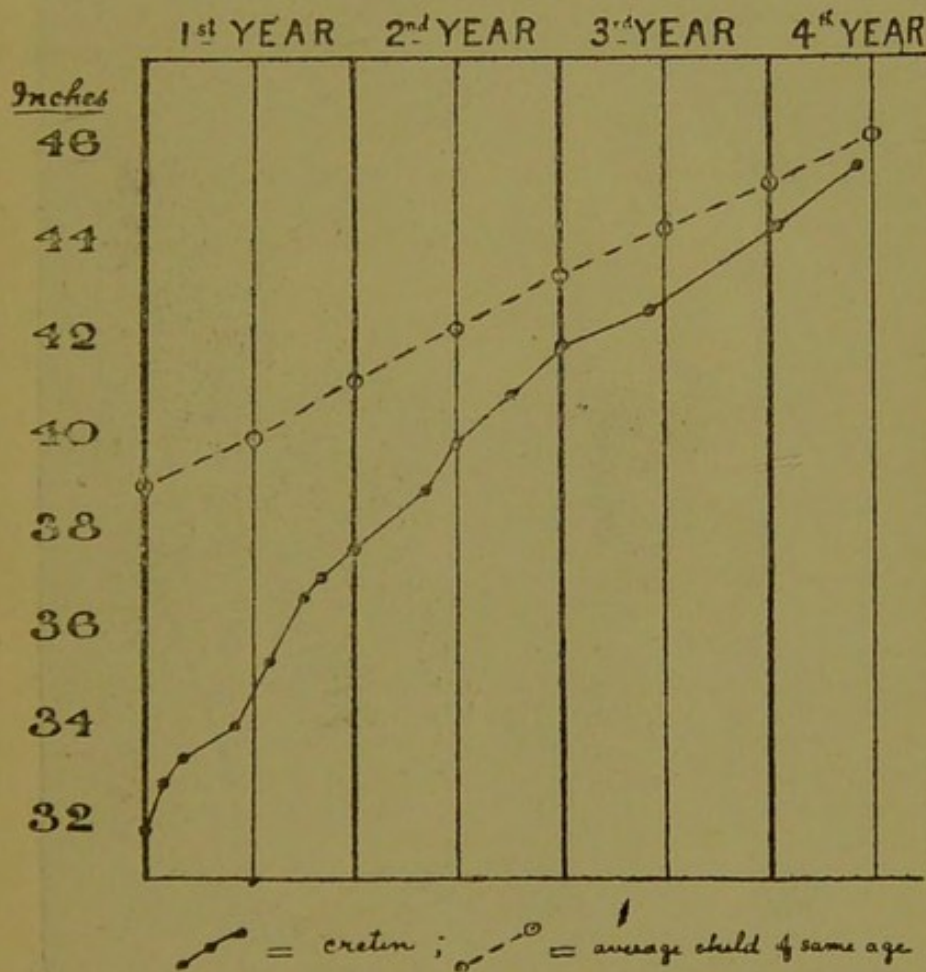
¹ *Edin. Hosp. Rep.*, 1894.

² *Edin. Med. Journ.*, May, 1893, and February, 1894.

ment. In the two adult patients these have changed very little in character, while in the adolescents they have grown very long and become much more natural in shape.

Another point is rather curious. When a normal child gets taller we find that the lower limbs grow considerably faster than the trunk and upper limbs do, and consequently that the centre of the body changes from the umbilicus in infancy to the pubes in adult life. Now the young cretin grew normally in this particular. In the adolescents the growth of the upper and lower limbs was very nearly the same, while in the two adults the arms grew more than the legs.

Chart of Growth of Young Cretin during 3½ Years' Thyroid Treatment.



3. COMPLICATIONS.

(a) *Increase of Spinal Curvature.*—In two of my cases—the older of the adolescents and the younger of the adults—there was very severe lateral curvature, and in both, especially the former, this increased considerably under the treatment. In these two, therefore, the mere increase in height was not a reliable index of the growth of the body.

(b) *Bowlegs.*—In both the adolescents the growth of the bones was accompanied by such softness that the increased standing and walking led to great bending of the legs which closely resembled that commonly produced in rickets. In the boy, who walked much more than usual soon after the beginning of the treatment, the bending of the legs was noticed within three months. It has increased greatly (Fig. 1),

but has never gone far enough to interfere much with his power of walking. In the girl, who was very long in beginning to



Fig. 1.—“Adolescent” cretin, aged 25 years 2 months, after three years' treatment, showing extreme bending of leg bones.

walk, and did not do so freely until she had got very heavy, the bending only began in the second year. When it did

begin, however, it was very extreme in amount (Fig. 2) and rapid in development, and it has crippled her to a very serious extent.

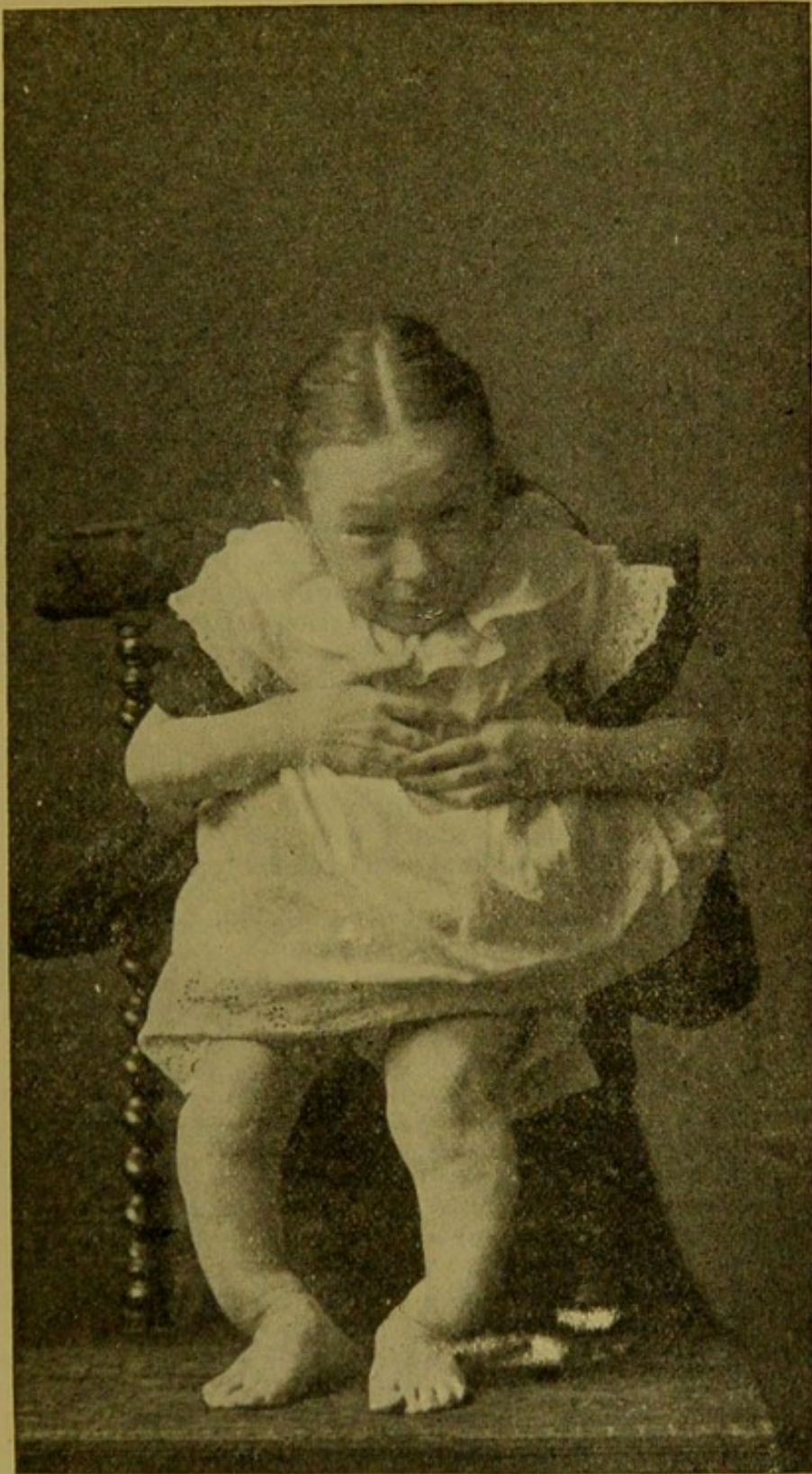


Fig. 2.—“Adolescent” cretin, aged 22 years 1 month, after treatment for three years and a-half, showing bending of leg bones, comparative growth of arms and legs, and alteration in shape of hands.

Possibly this tendency to bowlegs may be due to too large

doses of thyroid or to some other indiscretion in the treatment. It certainly seems likely to constitute a troublesome complication in the management of adolescent cretins. We should try to avert it by keeping the patient from walking too much at first and by giving him strengthening diet and medicine. Practically, however, these indications may be extremely difficult to fulfil. On the one hand, the great increase of energy renders it almost impossible to keep the patient off his feet, and, on the other, cretins are often extremely difficult to diet or to dose owing to their very fastidious tastes and the lax discipline to which they have always been accustomed.

What the pathology of these soft bones is I shall not venture to decide. When one sees the bent limbs, the enlarged epiphyses, and sometimes a sort of rosary on the chest wall, along with profuse sweating, nocturnal restlessness, and muscular debility, one naturally asks oneself whether, in restoring to these adolescents the growing capacities of babyhood, we have not also given them back the liability to rickets which they had left far behind them. It seems quite probable that this may be so.

4. THE HAIR OF THE HEAD.

The hair was affected differently in the older and younger cases. In the child and in the two adolescents the characteristic coarse hair was rapidly replaced by softer and finer hair of a somewhat duller shade. In the adults, after more than two years' treatment, there was practically no change in its character or colour.

5. THE MENTAL IMPROVEMENT.

The mental change is exceedingly difficult to estimate and also, indeed, to define; I shall, therefore, only attempt to speak of a few points which seemed tolerably distinct in my cases.

To begin with, the child, and even more markedly the two adolescents, seemed to their relatives to improve very greatly in intelligence during the first few months of treatment. On careful investigation, however, I was unable to convince myself that mental improvement was really appreciable at this stage. The reason of the parent's mistake is not difficult to discover. It is partly that the cretins look so very stupid before treatment that they do not get enough credit for the wits they really have, and partly that when the beneficial effect of the thyroid begins to free the facial muscles and lets them come nearer the surface, the patient becomes so much more like his relatives than he ever was before, and looks so much brighter in every way, that the parents not unnaturally overestimate the significance of his altered appearance and livelier movements.

There was, however, also evidence of some real mental improvement in all my five cases with the doubtful exception of the oldest one. It was not distinctly perceptible until the sixth or eighth month, or later. About that time the weight was beginning to increase again, and the bodily functions of all sorts were becoming more vigorous and normal. The mental improvement seemed, therefore, part of a general upward move, and although it was very slight it was permanent and progressive.

In the case of the young child the gain in intelligence has not only continued but, since the bodily growth has slowed, has become much more pronounced. Now, at the age of 8 years, her teachers in the board school report that, except in arithmetic, she is not very far behind the average of the class, and is certainly a good deal more intelligent than several of the other children. Her capacity for arithmetic, although defective, is said by her teacher to be distinctly improving. The absence of capacity for counting is extremely marked in both the adolescents, and neither of them seems even now to have the remotest idea of any arithmetical calculation, or even of the meaning of numbers. The oldest of the patients, who is a less severe case of the disease altogether, has been able to do small sums for many years. The chief mental advance, however, in all the patients was not so much an improvement in thinking as an increase in the power of giving effect to their thoughts by action, and hence a greater freedom in exercising all their motor functions. The patients became more inquisitive, more independent and enterprising, more "naughty," as the parents said, and they were more inclined to play actively, for example, they began to dress and undress their dolls which formerly they just sat and looked at.

Lastly, as the natural result of the greatly increased activity of mind and body the abnormal shyness when present passed off, the irritability lessened, and there was a remarkable increase in the patient's capacity for happiness. From being dull, morose, and self-centred, they became in a varying degree bright, happy, and sociable.

IV.—VICTOR HORSLEY, F.R.C.S., F.R.S.,

Surgeon to the National Hospital for the Paralysed and Epileptic.

MR. VICTOR HORSLEY showed a photograph of a rare and well-marked specimen of intrauterine cretinism. The child was stillborn and the case corresponded with the description of foetal rickets. The changes in the bones had been investigated by Hofmeister and von Eiselsberg, who found a great similarity to those of ordinary rickets, and studied them in reference to the removal of the thyroid of animals at birth. Cretins whose bones showed signs of softening should be kept lying down as they would be in ordinary rickets. Grafting thyroid into the peritoneal cavity was only a temporary measure equivalent to injection of thyroid material, in no way constituting a real transplantation of the gland, which should be effected by imbedding the gland in connective tissue.

V.—FLETCHER BEACH, M.B., F.R.C.P.,

Physician to the West End Hospital for Nervous Diseases; formerly
Medical Superintendent of the Darent Schools for
Imbecile Children.

THE ETIOLOGY OF SPORADIC CRETINISM.

ON studying the etiology of sporadic cretinism we find that many causes combine to produce the disease. Two or three years ago I collected 116 cases, of whom 16 had been under my own care, and it is from analysis of the histories of these that the following observations are made:

Consanguinity was noted in 6 cases, but in 4 of these

other causes existed which of themselves would have tended to produce cretinism; in 1 the mother died of phthisis; in 2 the father was insane—in 1 of these the mother had a fright during pregnancy, and in 1 the grandmothers of the patient, both sisters, drank.

Intemperance does not appear to exert much influence. It was present in only 14 cases; in 4 of these it existed in the grandparents and not in the parents; in 1 the father and grandfather drank. The theory that sporadic cretinism is due to intemperance at the time of the procreative act is not borne out by facts, for in only 3 cases was this given as a cause. Only the direct line of parentage was considered, drunkenness of the uncles and aunts of patients not being taken into account.

Phthisis does not play such an important part in the production of the disease as one arguing from the analogy of idiocy would suppose. In the latter affection it accounts for no less than 28.31 per cent. of the patients, but it is found in cretinism in only 14 cases, or 12.07 per cent. Even in these, in 5 only did it exist in the parents; in 6 it was stated to be present in the father's or mother's side of the family, and in 2 the grandparents alone suffered from it.

Inherited mental disease was noted in 9 cases. In 2 the father was insane; in 2 he was not very sharp; in 2 the grandparents were insane; and in 3 the uncles and aunts were similarly affected.

Neurotic inheritance does not hold quite such a prominent position as regards the direct line. In 4 cases the mother suffered from epilepsy, and in 3 of these the aunts also; in 1 the maternal grandfather and maternal uncle were epileptic. The influence of the neurosis was seen in some of these and in other cases, for in 6 families the brothers and sisters of the patient died of convulsions, in 2 they suffered from imbecility or idiocy, and in 2 the first cousins were idiots. A lesser degree of neurosis was present in 6 cases in which the parents, uncles, or aunts were afflicted with migraine, hysteria, excitability, severe neuralgia, and extreme nervousness.

Fright of the mother during pregnancy was given as a cause in 13 cases. Those of us who are accustomed to inquire into the causation of idiocy and imbecility have to be on our guard on this point, for the parents are apt to assign it as a cause when more potent influences are present. Nevertheless, in a certain number of cases we shall find this condition of sufficient importance, such as a fright brought on by a fire close to the house or the sudden death of a neighbour.

Other conditions given as causes were protracted labour in 7 cases, and injury to the mother during pregnancy in 2. In 1 the mother took morphine while suckling and the child died of convulsions; in 1 the father was slightly microcephalic and in 1 the mother; in 1 goitre was present in the mother, maternal grandmother, and six maternal aunts. This is an interesting fact in view of the late Dr. Fagge's theory that a certain amount of antagonism exists between goitre and cretinism.

In 2 cases the child was born in a valley which was foggy and marshy, and in 1 of these the patient was the only member of the family who was born under these conditions. This fact also is important, since long ago endemic cretinism was considered to be due to patients being born and con-

tinuing to live in valleys in which they inhaled a vitiated atmosphere and suffered from want of sunlight. Increased interest is given to this theory owing to the fact related by Dr. Byrom Bramwell in the *BRITISH MEDICAL JOURNAL* some time ago—that he had discovered 6 cases of sporadic cretinism and some cases of myxœdema living within a radius of half a mile in Edinburgh. He at that time thought that the condition of the thyroid gland which is found in sporadic cretinism and myxœdema may be due to a local or endemic cause, and he is, I believe, making further researches on this point.

As to the age at which this condition comes under treatment I find the lowest to be 6 months and the highest 42 years. The latter age is seldom reached as far as my experience goes, though when I left Darenth Schools, I had, among others, 2 under treatment, aged 26 and 25 respectively. Bourneville mentions a case aged 32, and Francis one aged 36. Of the 116 cases in which the age was stated, 14 came under treatment between the age of 6 months and 3 years; 20 between the age of 4 and 7; 12 between 8 and 10 years; 18 between 10 and 15 years; 19 between 15 and 20 years; 20 between 20 and 30 years; and 9 between 30 and 40 years.

The following table will show this more clearly.

Table showing the Age at which Patients came under Treatment.

Age.	Males.	Females.	Total.
Under 1 year	3	2	5
Between 1 and 2 years	0	2	2
At 2 years	0	4	4
" 3 "	1	2	3
" 4 "	3	6	9
" 5 "	0	4	4
" 6 "	1	5	6
" 7 "	0	1	1
" 8 "	1	2	3
" 9 "	1	3	4
" 10 "	2	3	5
" 11 "	2	2	4
" 12 "	1	3	4
" 13 "	1	2	3
" 14 "	1	3	4
" 15 "	1	2	3
" 16 "	4	3	7
" 17 "	1	1	2
" 18 "	4	0	4
" 19 "	0	4	4
" 20 "	2	0	2
From 20 to 30 years	10	10	20
" 30 to 42 "	4	5	9

As regards the age at which symptoms were first noted, it is noticeable that of 59 cases in which this was stated 40 were observed up to the age of 18 months and 19 afterwards. This result agrees with the statement of Dr. Bourneville, who says that sporadic cretinism generally appears before the age of 18 months, and that an experienced eye can discover the symptoms from the first year, if not in the first months of life. Of the cases in which the symptoms were noted at the age of 8 years, one is recorded by Dr. Coxwell, who says that up to this time the patient could read a chapter out of the

Bible; the other is mentioned by the late Dr. Fagge, and in this case the symptoms came on after an attack of measles. Probably some cause was at work in the case of those in whom the symptoms first were noticed at 3, 4, and 5 years of age, but it is difficult to get full histories out of the parents of these patients. The case in which the symptoms were first noted after an attack of measles seems to be of the nature of myxœdema.

The table showing the age at which symptoms were first noted is appended :

Age.	Number of Cases.
At or soon after birth	15
Up to 9 months	9
Up to 1 year	2
At 1 year	10
Up to 18 months... ..	4
At 2 years	3
Between 2 and 3 years	6
At 3 years	3
At 4 years	4
At 5 years	1
At 8 years	2

On examining the sex of the 116 cases, in which it has been stated, we notice that 43 were males and 71 females. If to these we add 3 males and 9 females mentioned in Dr. Langdon Down's book, we have 46 males and 80 females, or not quite twice as many females as males.

With regard to locality, the cases occurred as follows: In England, 31 (of these, 18 were seen in London); in Wales, 1; in Scotland, 12 (of these, 5 were seen in Edinburgh); in Ireland, 1; in France, 15; in Germany, 2; in Belgium, 1; in Spain, 2; in Sweden, 1; in America, 12; in New South Wales, 1; near Adelaide, 6; in Brisbane, 1; in New Zealand, 1. The locality of the remaining cases was not stated. From this account we find that the disease prevails most extensively in England, while Scotland, France, and America have an equal number of cases.

Of the 116 cases in which the presence or absence of the thyroid gland was noted, it was "not felt" in 73, was "felt" in 11, and was enlarged in 7 cases. Even when it was present, there must have been some loss of function, or, as far as we know, there would have been no cretinism. The most reliable evidence, of course, is that which is found on making a necropsy of the patients. Of 16 *post-mortems* of which I have been able to find an account, 8 being made by myself, there was no thyroid in 14 cases and a bronchocele in 2.

With regard to Mongolian imbecility, I had a case under treatment at the West End Hospital which was under thyroid treatment for six months; I found a little improvement, but this I accounted for by her association with more intelligent children. I cannot quite agree with Dr. Telford Smith that these cases are apathetic; I think them, on the contrary, a vivacious type of idiot. I do not think any great mental improvement can take place. The brains are exceedingly simple in development, and unless we can increase the number of cells or their processes, I do not see how improvement beyond a certain point can take place.

As regards treatment of sporadic cretinism, it must be kept up during the whole life of the child, otherwise he will relapse into his former condition.

VI.—G. E. SHUTTLEWORTH, M.D.,

Ancaster House, Richmond;

Formerly Medical Superintendent Royal Albert Asylum, Lancaster.

DR. SHUTTLEWORTH said that after the exhaustive treatment of the subject by previous speakers there remained but little for him to add. Indeed his own experience of cretinism was almost a matter of ancient history, his first acquaintance with it having been made more than a quarter of a century ago. His first case was a youth of 22, a physical and mental dwarf (whose photo was shown), only 3 feet in height, and cited by Dr. Langdon Down as an instance of drunken procreation. While Medical Superintendent of the Royal Albert Asylum from 1870 to 1893 he came across only 6 cases out of a total number of about 1,600 who passed through that institution, so that the comparative rarity of the affection impressed him. Though on the look-out for such cases he met with only 2 well marked ones in his first 20 years, both girls (whose photographs were shown). One passed from the asylum to a Westmoreland workhouse before the dawn of the thyroid period, and there died. This same case was fully described by Dr. Judson Bury in a monograph on Cretinism in Keating's *Cyclopædia of Children's Disease* (1889), who pointed out the arrested growth in the length of the bones that developed in cartilage while the bones formed in membrane showed normal or excessive growth. Subsequent to 1890 4 other cases of cretinism were received into the Albert Asylum, and stimulated by what he had heard at one of the annual meetings of the successful treatment of myxœdema by thyroid Dr. Shuttleworth suggested to his colleague Dr. Telford Smith the trial of this treatment. The first case was undertaken early in 1893. Two years after the treatment was commenced he saw this boy and also his brother, who was similarly affected, and treated in their own home. The boy in question, then 12 years old, was attending an ordinary infant school; he had certainly improved—notably in speech and intelligence. The question of treating other types of idiocy by thyroid was interesting. He was glad Dr. Telford Smith was giving it a full trial with (so-called) Mongols, who certainly presents some resemblance to, though also decided differences from, the cretin type. He had himself treated 2 such cases with thyroid, but after 6 months' trial the results were not sufficiently encouraging to induce him to persevere with it. There were, however, some other cases allied to cretinism though not presenting all the characteristic features in which he had found thyroid extract beneficial. It was not improbable that in some cases there might be a temporary loss of functional activity in the thyroid gland of young children. Last year he saw in consultation a baby who at 1 year old ceased to "get on," became flabby, fat, lost his vivacity, and began to show a protuberant abdomen, a lax skin, and other cretinoid appearances. Treatment with small doses of thyroid, $\frac{1}{4}$ tabloid daily, speedily picked him up; he grew, became lively, and at the end of 6 months treatment was discontinued without retrogression. The difficulty in these slight cases was the diagnosis, but there seemed to be various degrees of cretinism, and all might be benefited by the judicious administration of thyroid.

Dr. GEORGE MURRAY (Newcastle-on-Tyne) mentioned that he had seen an increase in the vocabulary of cretins after treatment by thyroid extract. In one case micturition had been involuntary before treatment, but became normal afterwards. Various types occurred according to the age at which the thyroid became diseased, and according to the amount of injury done to the gland. A good plan in carrying out the treatment in adult cretins was to begin with one minim of the thyroid extract each day, and to increase the dose by a minim each month till the limit of tolerance was reached.

The PRESIDENT (Dr. J. Finlayson) said that he had had an interesting case under observation, in which the treatment was irregularly carried on, and the patient subject to relapses in consequence. The child in question did, however, grow $4\frac{1}{2}$ inches in two years, and learnt to speak under treatment. It was a difficult matter among the poorer classes to secure the treatment of a child for all the rest of its life. Grafting was useless with a hope of securing permanent benefit.

Dr. DRAPER thought that in cases of semi-cretinism where there was some lordosis, slight umbilical hernia, rickets, and some mental difference from other children that thyroid treatment might prove valuable. Such cases often existed undiscovered. Backward children might be improved in the same way. A patient under his care had been at school from 10 years old, and at 18 could not count. Her weight had increased by 4 stone in one year. Under thyroid treatment she improved much, lost weight, and her temperature rose to normal. The thyroid extract had to be discontinued on account of the rapidity of pulse which it produced in doses of 3 grains. In another case the temperature remained normal with 1 grain doses, but rose to 100° if two powders were given daily.

Dr. OLIPHANT NICHOLSON (Kirkcaldy) said that, with regard to the etiology of cretinism, it would be interesting to acquire more information on the geographical distribution of the disease, and compare the geological formation of the specially affected areas; also their situation and peculiarities. At present the data were insufficient to enable us to say whether or not the geology of a district had anything to do with the occurrence of cretinism, and if the disease was in any way connected with the presence of an excess of soluble salts of lime or iron in the drinking water one would expect to find a large number of cases in London and along the valley of the Thames. But if specially affected cretinous districts were mapped out all over the globe, or even over the British Isles, one might find some common element existing as a possible factor in the causation of the disease. Then any relation between ordinary goitre and cretinism should be more carefully studied, and it might be found that a specially goitrous district was also a cretinous one. Some thirty years ago at Penrith in Cumberland, simple goitre was a fairly common disease, and now it was a comparatively rare one, possibly because the town was supplied with river water, while formerly the inhabitants were much more dependent on well water containing a large percentage of lime salts from the red marls and limestones of the district. Goitre was, however, still not uncommon in the country villages along the Eden Valley, and cretins would seem to be found oftener in the English lake district than in any other part of Britain.

Dr. THOMSON, in reply, said the only case of Mongolian imbecility which he had seen improve decidedly was a girl aged sixteen, who had become very fat, and was rendered much more active, and also a little taller, by seven weeks' thyroid treatment. Other cases had shown no appreciable change. As to the local occurrence of the disease in Edinburgh, any further investigations which had been made by Dr. Byrom Bramwell and himself were disappointing. One at least of the cases living in the supposed affected district had not been born there, and, so far as he knew, all the cases which had lately come under treatment had been from quite different parts of the town. As to details of treatment, he had had better results from giving the raw gland twice a week than from any manufactured preparation, but his experience was not sufficiently large to prove anything. In one case, a boy aged $18\frac{1}{2}$, stopping the regular bi-weekly dose of gland was on three occasions followed within two or three days by occipital headache, profuse sweating, restlessness, and great distress, symptoms precisely similar to those which had at the commencement of treatment resulted from an overdose. These symptoms rapidly disappeared when the thyroid was given.

Dr. RUSHTON PARKER subsequently stated that he thought cretinism was due to a variety of conditions, such as congenital absence of thyroid, atrophy due to disease in childhood, and degeneration due to goitre.

TENDENCY TO BENDING OF THE BONES IN CRETINS UNDER THYROID TREATMENT.

ONE of the most marked among the many other signs of development produced in cretins during the administration of thyroid preparations is the rapid increase of growth in stature which takes place, an effect which is all the more striking when we remember that in these cases growth is almost at a standstill previous to treatment.

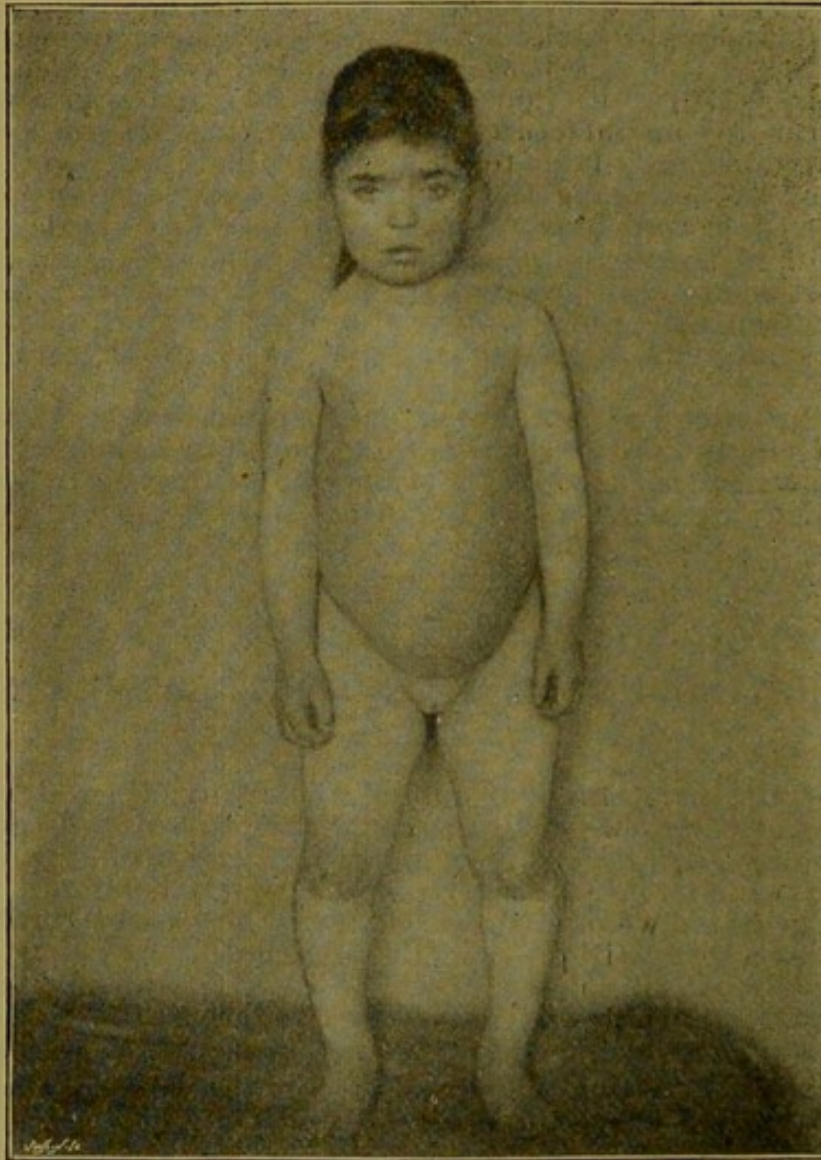
The boy, D. B., notes of whose case I published in the BRITISH MEDICAL JOURNAL for June 2nd, 1894, grew $4\frac{1}{4}$ inches in ten months under thyroid treatment, and his brother grew four inches in less than a year under similar treatment, as recorded by Dr. T. C. Railton in the JOURNAL of the same date.¹

As a point in the practical treatment of these cases, I have found that during thyroid treatment this rapid growth of the skeleton leads to a softened condition of the bones, resulting in a yielding and bending of those which have to bear weight; and as cretins under treatment become much more active and inclined to run about, this tendency to bending has to be guarded against.

The girl, A. W. (aged $17\frac{3}{4}$ years), of whom photographs are given, shows this increased bending of the legs very well. She has now been continuously under thyroid treatment for

¹ Case of Sporadic Cretinism treated with Thyroid Gland, by T. Telford-Smith, M.A., M.D., BRITISH MEDICAL JOURNAL, June 2nd, 1894, and Sporadic Cretinism treated by Administration of the Thyroid Gland, by T. C. Railton, M.D. Lond., *ibid.*

2½ years, taking one 5 gr. tabloid (Burroughs and Wellcome) daily with her dinner, and during that period she has grown 7½ inches (from 3 feet 6 inches to 4 feet 1½ inch). During the period of two years previous to treatment, she had only grown 1 inch² (from 3 feet 5 inches to 3 feet 6 inches). For the last few months, she has been kept as far as possible at rest, so as to prevent to some degree this bending of the legs.



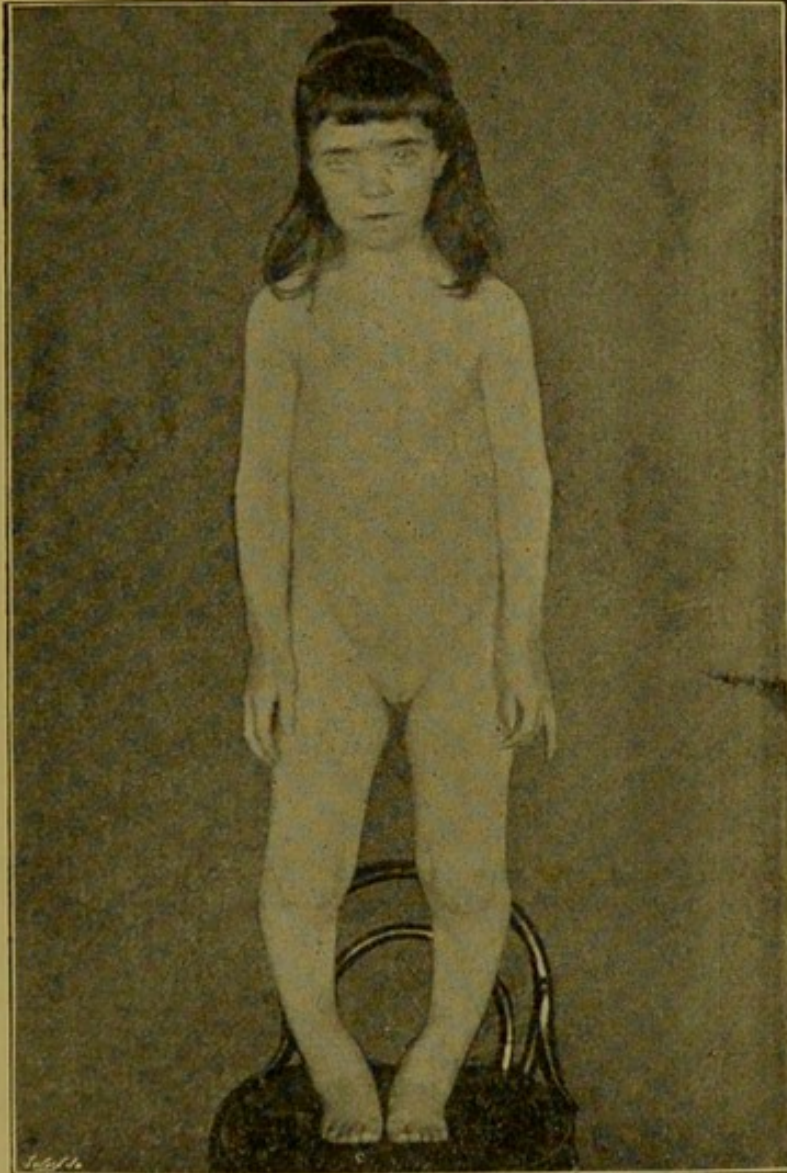
A. W. at age of 15½ years (before treatment). Height 3 ft. 6 in.; weight 4 st. 2 lbs.

The second photograph shows that the bending takes place most markedly in the tibia and fibula, the increased size of the ends of these bones at the ankle and knee being very noticeable. Several of the photographs of cretins before and after thyroid treatment exhibited by Dr. W. R. Parker, of Kendal, and Dr. John Thomson, of Edinburgh, at the recent British Medical Association meeting at Carlisle, showed this increased bending of the legs very clearly, and

² Cases of Sporadic Cretinism treated by Thyroid Extract; by T. Telford-Smith, M.A., M.D., *Journal of Mental Science*, April, 1895.

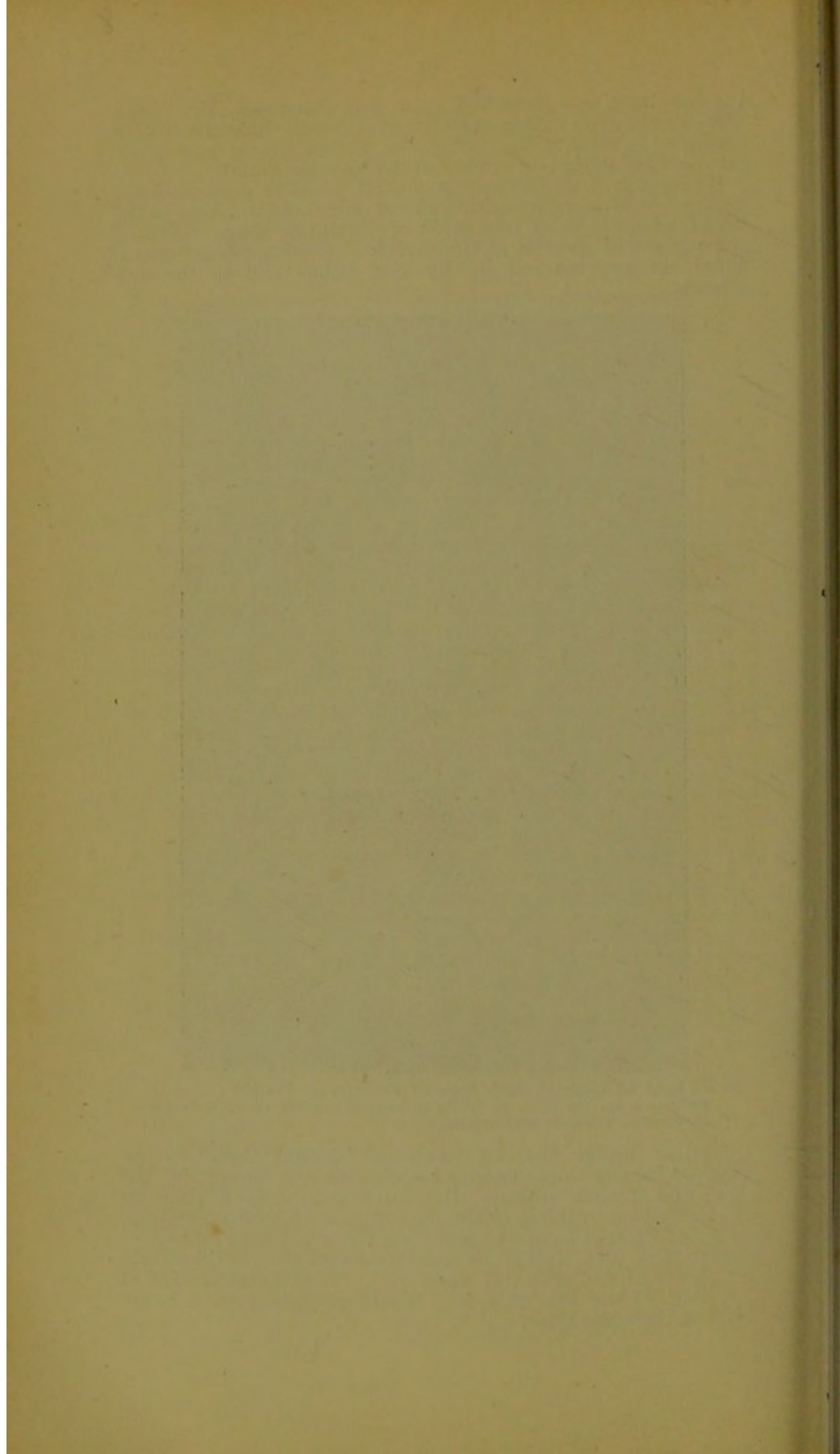
the condition was remarked upon and discussed, Mr. Victor Horsley showing in this connection slides to illustrate rickets produced in rabbits by Hoffmester, and in sheep and goats by von Eiselsberg by removal of the thyroid gland.

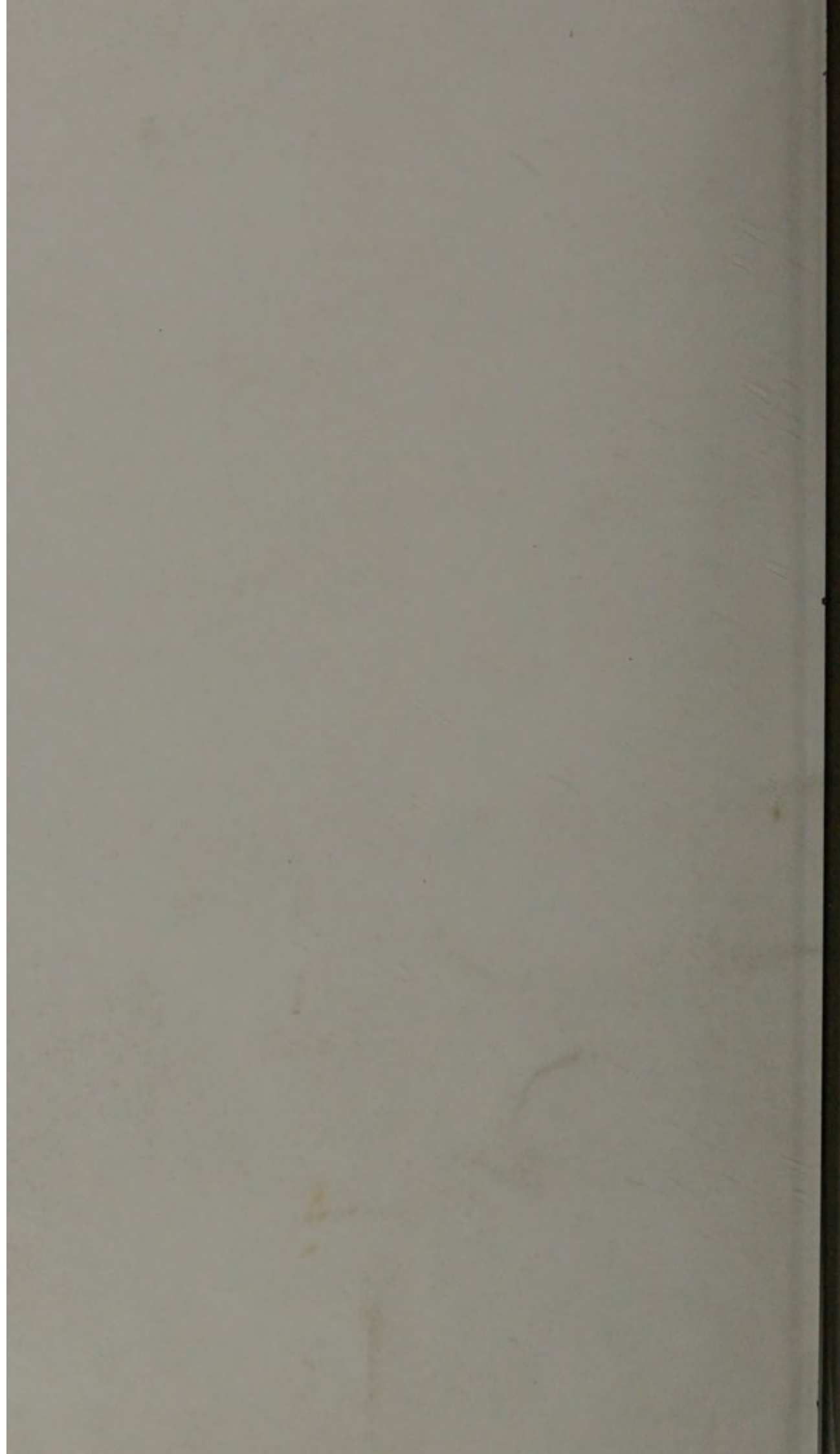
While in rickets, however produced, there is perverted and delayed ossification resulting in softening and bending of the bones, under thyroid treatment in cretinism there is rapid resumption of growth in the skeleton, leading to softening, which is most marked in the long bones and at the epiphyses.



A. W., aged $17\frac{3}{4}$ (after $2\frac{1}{2}$ years' thyroid treatment). Height 4 ft. $1\frac{1}{2}$ in.; weight 4 st. $10\frac{1}{2}$ lbs. Showing increased bowing of legs, and enlargement of knees and ankles.

Cretins under thyroid treatment should therefore be watched for any commencing bending of the bones of the legs; and if such appears, the child should for a time be hindered from walking, or the legs supported by light splints. As an additional means of assisting the rapid bone and other growth, the diet should be generous, and the child should get plenty of sunlight and open air. The administration of cod-liver oil and Parrish's food would probably prove beneficial at the same time.





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