of the pleura was an expression often used in a somewhat vague way, and the idea that seemed to be in most people's mind was that the pleura was thickened by the formation of a mass of new material between the parietal and visceral pleural surfaces. He pointed out that the lymph so deposited had very little to do with the subsequent formation of cartilaginous tissue, which was, for the most part, due to collapse of the superficial layers of air cells, and their fibroid degeneration. He agreed with Dr. Powell in his estimate of the value of so-called antiseptic treatment of tubercle. Until surgeons could show that they could successfully treat a tubercular affection of a synovial membrane, which was accessible to every kind of local treatment, there was no reasonable ground for thinking that these means, given by the mouth or inhaled air, in vapour or spray, could be effective. He protested against the suggestion of Dr. Churton, that the chest should be incised in simple pleurisy, and denied that there was any analogy for thinking that such an operation would prevent the occurrence of tuberculosis. With reference to the remarks of Dr. Drysdale, he wished to recall the words of Virchow, who, in his address at the Medical Congress in 1881, said that the recent discoveries of specific micro-organisms brought into greater prominence than ever the old doctrine of predisposition.

IX.—F. IMLACH, M.D., Liverpool.

DR. IMLACH had been much interested in Dr. Powell's observations on cases of tuberculous peritonitis in which no primary lesion of any abdominal or pelvic organ could be found. Either the primary lesion had become obsolescent, and was without clinical importance, or there was none. In such cases abdominal section with washing out and drainage resulted in an apparent cure, as he had found in five instances. In these the tuberculous nodules of the peritoneum were previously unsuspected. But when there was tuberculous ulcer of the intestines surgery seemed to be of little service, and when the lungs or liver were affected, of none at all. He had watched the progress of one of his five cases for four years, and there had been no return of the disease.

X.—JULIUS DRESCHFELD, M.D., F.R.C.P., Professor of Pathology, Victoria University, Manchester; Physician to the Manchester Royal Infirmary.

DR. DRESCHFELD said he was led to draw attention only to one or two points of pathology which might explain the peculiar behaviour of cases of tuberculous peritonitis as regards prognosis. When a tuberculous peritoneum was examined tubercle bacilli were often found to be absent. In such cases the spores were present but no bacilli. Such a condition was found also in so-called healed phthisis, where no bacilli were found, but where inoculation in animals with particles of the caseous nodule produced typical tuberculosis, etc., and it might be assumed that a very similar condition occurred in peritoneal tuberculosis, and that many of these cases might recover when the spores did not develop further, or they might, when a particular predisposing cause arose, spring into activity and produce acute tuberculosis or general tubercular disease.

THE PRESIDENT (Dr. J. E. Eddison) commented on various points that had been raised during the discussion, and Dr. POWELL replied.

NOTES OF A CASE OF TREPHINING FOR OLD DEPRESSED FRACTURE OF THE SKULL: RECOVERY.

By GEORGE BUCHANAN, A.M., M.D., LL.D.,
Professor of Clinical Surgery in the University of Glasgow.

THE following case is a good example of the beneficial effects which may follow removal of pressure from a localised spot of the brain, even long after the injury received. The notes of the case are by Dr. Dunlop, of Thornhill, who sent the patient to me and took charge of him after the operation.

P. M., aged 33, a railway surface man, received a compound fracture of the skull by his head coming in contact with a bolt

projecting from a bridge under which a train was passing, he being at the time standing in one of the wagons. The seat of injury was the occipital bone, near its upper angle, about an inch or more to one side. He was stunned by the blow, and was taken in an unconscious state to Dumfries Infirmary, and remained so for three days. Eight days afterwards he was conveyed home, and was, as far as can be ascertained, fairly well for six weeks, when he again became unconscious and was confined to bed for three months. At that time he complained of great pain in the top of his head. The headaches were sometimes so severe that they were accompanied by fever and sometimes delirium. Blisters were frequently applied to the nape of the neck. He recovered sufficiently to allow of his going about his ordinary occupation; married, and lived comfortably in a little cottage some miles from Thornhill.

Six years ago, the pains in the head again became worse, and symptoms of gastric derangement showed themselves. The pain was not uninterrupted, but came on occasionally with great severity, completely unfitting him for all duty, and causing indigestion and inability to take food.

In April, 1889, he called on me, and I found at the seat of the old injury a manifest but very slight depression in the skull. From this point he declared that the pain always arose, and felt as if shooting all round his head. I told him that the only hope of recovery was the removal of a piece of bone from the site of the old injury; but that the result could only be problematical, and the operation not devoid of danger.

During the summer he went for change of air to the sea coast, but not finding any improvement, but rather an increase of pain, he determined to have the operation performed. I did this on July 29th at his house near Thornhill, with the assistance of Dr. Dunlop and my son.

The head being shaved, the cicatrix of the old wound on the scalp was seen at a point about an inch and a half from the superior angle of the occipital bone to the left side. A crucial incision having been made over this spot, and the flaps retracted, I could see and feel the edge of the old fracture, with a depression about an eighth of an inch. I applied a trephine, and removed a disc of bone the size of a shilling, and had the satisfaction of finding I had got the bit which had been pressing inwards. There were no starred or rough edges. Whatever had been smoothed away; but there was a projection inwards, something like a bone button—making the skull in that part two or three times thicker than normal, and the thickness pressing in on the membranes. There was no abnormal appearance on the membranes. I stitched the points of the flaps together, and applied a simple dressing of alembroth gauze and cotton. The wound healed by first intention. Dr. Dunlop only changed the dressing two or three times, and the patient made an excellent recovery.

The headaches have entirely disappeared (December, 1889), his appetite and digestion are both good, and he feels himself "a new man," as he expresses it.

NOTES OF A LECTURE ON SOME FORMS OF RETINAL PIGMENTATION.

Delivered at the Royal Westminster Ophthalmic Hospital,

By W. ADAMS FROST, F.R.C.S.,
Surgeon to the Hospital.

I do not propose here to deal at all exhaustively with the subject of pigmentation of the retina, but merely to illustrate some forms in which it occurs, which appear to me to be in some degree typical of their kind. It is, I believe, generally admitted that in all cases in which pigment is found in the anterior layers of the retina, its source is the layer of hexagonal pigmented cells which is now considered to form the deepest layer of that membrane. The most common cause of pigmentation of the retina is undoubtedly choroiditis, and although it must be considered an established fact that the pigment layer is histologically a part of the retina, yet clinically it is much more intimately associated with the choroid, participating, as it does, very readily in affections of this membrane,

and often escaping in affections of the retina—not even accompanying it when it becomes detached from the choroid.

It is a curious feature about pathological pigmentation of the anterior layers of the retina that it is always associated, sooner or later, with de-pigmentation of the layer that normally contains pigment; to what extent these two processes are correlated as cause and effect I will not now consider.

I propose to consider some cases of retinal pigmentation which have at any rate this in common, that they are not secondary to choroiditis. Examples of these are given in the accompanying lithographic plate.

Fig. 1 is an illustration of one form in which pigmentation of the retina may occur as a physiological peculiarity. The pigment is arranged in groups, each being formed by an aggregation of small black dots varying from two to six in number. These groups are scattered over a wedge-shaped area, having its apex at the optic disc, and its sides formed by the inferior nasal and inferior temporal vessels. The painting was made from a child who had normal vision, the visual field was not taken. I have seen another very similar case¹ in which the individual groups were larger but fewer in number; in this case the fundus-red was rather darker than usual. The subject was a boy, aged 13. There was total hypermetropia of 2.75 D.; the vision was normal. A case very similar to these is figured in Wecker and Jaeger's *Atlas* (Fig. 76) under the title "New Formation of Pigment." In this also vision was normal.

There can be no doubt that these are examples simply of a physiological peculiarity analogous to that which occasionally causes one sector of the iris to present a pigmentation which is in contrast with the remainder.

For the opportunity of obtaining drawings of this and of many other physiological peculiarities of the fundus I am indebted to Mr. S. Stephenson, at the time that he was assistant medical officer at the South Lambeth schools.

Figs. 2 and 3 are examples of retinitis pigmentosa in an early and a late stage respectively. The name of this disease is in such general use that it would be idle to attempt to change it, yet in many respects it is misleading; for in the first place the disease is much more of a degenerative than of an inflammatory type; in the second place, pigmentation of the retina occurs in other conditions; and in the third, in many cases which must certainly be included under the title, retinal pigment is present in quite an insignificant amount (as in Fig. 3). The name, however, is comparatively unimportant as long as it is by general consent taken to refer to a definite clinical entity, of which the subjective symptoms are night-blindness and a gradual diminution of the visual field with retention of fair central vision, the whole running an eminently chronic course, extending over many years. At the same time there are the characteristic objective signs to be seen with the ophthalmoscope, namely, pigmentation of the superficial layers of the retina, the sheaths of the vessels being frequently involved, and atrophy of the pigment layer of the retina, which allows the choroidal vessels to become visible.

Now, the term "retinitis pigmentosa" tends to exalt the value of the one factor in the disease at the expense of the other. Even some of our best textbooks are not free from ambiguity as to the value that is to be attributed to atrophy of the pigment layers as a symptom in this disease. Thus, in Dr. Berry's *Diseases of the Eye*, page 162, we find that "typical cases of retinitis pigmentosa are quite different from the variety following severe syphilitic choroiditis, and are easily recognised by the delicate shapes of the pigment deposited in the retina, its relation to the vessels, and the absence often of any disappearance of the pigment in the hexagonal cells;" but, on page 275, we find that in true retinitis pigmentosa "there is usually a conspicuous defect in the pigment of the hexagonal cells, which allows the choroidal vessels with their pigmented interspaces to come into view."

I do not think sufficient stress has been laid by writers upon the fact that, as the disease progresses, the affected area becomes more extensive, but no proportionate increase takes place in the amount of pigment in the area of the fundus first affected. My own impression is—although I should like to see more cases before forming a positive opinion on the point—that the pigmentation diminishes in the later stages of the disease, and from the cases I have seen I should consider that Figs. 2 and 3 may be taken as fairly typical examples of the early and late stages of the disease.

Fig. 2 is a painting from the left eye of a girl, A. M., aged 23. She is the third of five children; the others being stated to be free from any affection of the eyes. One brother and one sister were seen by me, and their eyes were normal in all respects. The parents are both living, and stated to be in good health; they are not blood relations. The patient herself is anæmic, but otherwise is in good health. There are no signs of inherited syphilis, and no history or likelihood of the disease having been acquired.

In January, 1887, the patient first noticed that the sight of the left eye was not as good as it had hitherto been; she did not notice that the defect was greater at night. An attack of conjunctivitis appears to have directed her attention to the eye. Since then the patient thinks that the sight has gradually deteriorated; but this seems to be due rather to continued contraction of the visual field than to any actual lowering of the visual acuity.

She was first seen by me in February, 1888, at St. George's Hospital. The vision was then, in both eyes, 6-12ths, improved by 0.50 D to 6-9ths. The visual field in the right eye was practically normal; in the left it was at first thought to be contracted concentrically to about 20°, except below. A subsequent examination showed this was a mistake, and that beyond this central field, and separated from it, except below, by a blind area, was a peripheral band of functionally active retina (see chart);

in fact, the condition was analogous to the ring scotomata occasionally seen in this disease, but the ring was incomplete below, while above its breadth caused it to reach beyond the confines of the normal field. The light-sense was found to be very defective. With Förster's photometer, but with a different illumination and and test object than used by him, the right eye required an aperture having a diameter 14 millimetres and the left 20 millimetres, while the average of 10 normal eyes gave 3 millimetres as the minimum aperture required. With the ophthalmoscope the right eye showed a few streaks of pigment at the extreme periphery; the discs and vessels were normal. In the left eye the appearances were those depicted (Fig. 1). It will be seen that there is a considerable amount of pigment in the peripheral parts of the retina, and that this is made up of fine dots, which, by giving off processes that anastomose with others, form a network over the affected portion. It will also be seen that the pigment layer of the retina is atrophied in places, so that the choroidal vessels are visible, but the pigmentation is a more prominent feature of this case than the atrophy of the pigment layer. The retinal vessels are somewhat diminished in size, and the disc has a peculiar dull dirty hue. The drawing was not made till July, 1888, but no appreciable change had taken place in the appearances since the patient was first seen.

The vision during the whole time has fluctuated somewhat, without any obvious cause. At the last visit, on April 4th, 1889,

¹ These and other allied conditions were illustrated by lantern slides projected on a screen.

TO ILLUSTRATE THE PAPER BY MR. ADAMS FROST ON SOME FORMS OF RETINAL PIGMENTATION.

1.

2.

3

4.

A.W. Head del.

EXAMPLES OF RETINAL PIGMENTATION.

it was still 6-9ths, but on October 3rd, 1888, at the hospital, it was noted as being 6-18ths, and the next day it was only 6-36ths when tested at my house; the illumination on the latter occasion was certainly not worse than on the former. The visual field has been tested several times, but no appreciable variation has been found.

Fig. 3 illustrates a much later stage of retinitis pigmentosa. It is from the left eye of J. D., aged 35. When I first saw him on August 19th, 1885, vision had been failing very gradually for ten years; the defect was at first only noticed at night, and it has always been much worse then. In 1879 he attended the Royal London Ophthalmic Hospital for iritis; it does not appear that the fundus was examined at that time; and unless the patient had mentioned that he suffered from night-blindness, the ophthalmoscope, of course, would not have been used. The attack was evidently a very slight and transient one. It is interesting to note that the vision was then tested and noted as being 20-70ths, improved by -2 D to 20-20ths (that is, approximately, 6-24ths and 6-6ths).

When first seen by me the vision of each eye with -2 D was 6-9ths; since then it has very slowly got worse, with slight fluctuations; and on November 16th, 1889, it was 6-18ths. The patient has for several years taken iron, sometimes leaving it off for a few months; he is an intelligent man, and holds a very strong opinion that his vision is better while taking the iron. I have not been able, however, to satisfy myself of the accuracy of this belief.

The visual fields have also undergone a slow but steady contraction while the patient has been under observation. In 1885 that of the right eye had a radius of 20° upwards, and 22° downwards, 25° outwards, and 10° inwards. The left eye 18° upwards, 35° downwards, and 20° to each side. On November 16th, 1889, the right field measured had a radius of 10° in all directions, while the left was the same, except that it was prolonged outwards to 20°.

The ophthalmoscopic appearances have not appreciably altered since he first attended; in several respects they differ considerably from those seen in the preceding case. The pigment is comparatively scanty, but its arrangement is characteristic; it is most abundant at the periphery, but it approaches nearer to the centre than in the preceding case. It consists of dots and lines, from which fine processes are given off, these, in places, anastomosing with other processes, form an irregular network; the pigment evidently lies quite in the superficial layers, and in one place follows a retinal vein as if lying within its sheath. The atrophy of the pigment layer, on the other hand, is more extensive, and reaches right up to the optic disc. The latter also shows atrophic changes, and the retinal vessels are diminished in size.

Fig. 4 differs at first sight greatly from the preceding cases. The most striking feature about it is the enormous number of choroidal vessels that are visible, owing to the atrophy of the pigment layer of the retina. The atrophic process has also extended to the capillary layer of the choroid, with the result that, except in a few places where this layer remains intact, the normal red groundwork has given place to a dirty brown. The choroidal vessels also near the disc appear to have undergone morbid changes which have rendered their walls white and opaque. There is but little pigment, but what there is is arranged much as that in typical retinitis pigmentosa.

The drawing was made from the right eye of E. S., aged 55, at present a workhouse inmate. At the age of 21 he enlisted; he served in India for about twelve years, and left the army in 1871. A year later his sight began to fail; at first the defect was only noticed at dusk, but there has since been a gradual deterioration of vision, although the defect has always been much greater at night. Notwithstanding the extensive changes in the fundus at the time the painting was made, central vision with this eye was three letters of 6-12ths in ordinary daylight; at night-time he was as helpless as a blind man. The visual field was contracted to about 20° in all directions, conditions which correspond with the freedom of the region of the yellow spot from disease. In the left eye the changes were very similar, but a little more advanced vision being reduced to hand-reflex.

A case that is almost identical with this has been recorded, and figured by Mr. Stanford Morton in the *Transactions of the Ophthalmological Society*, vol. v. In this case the central vision was normal at the time the drawing was made, but the visual field was much contracted. When I saw the patient fifteen months later, the vision was 6-18ths, but it probably varied.

It seems to me that these cases are strictly analogous to true retinitis pigmentosa, or, at any rate, that it would be well to place them in this category till we obtain fuller knowledge. The clinical symptoms are identical, and the difference is chiefly in the greater prominence of the atrophic changes and the comparative insignificance of the pigmentation, but these are differences in degree and not in kind, and are possibly to be accounted for by the late appearance of the disease. I should provisionally look upon these cases as examples of senile retinitis pigmentosa, of course using the term "senile" merely in a relative sense.

FALMOUTH AS A HEALTH RESORT.

By SIR EDWARD H. SIEVEKING, M.D., LL.D., F.R.C.P.,

Physician in Ordinary to the Queen.

THE previous communications which I have made on the subject of Falmouth as a health resort, and which were found deserving of publication in the *JOURNAL*, did not contain any satisfactory data of a scientific character, but merely reflected the strong impression which a prolonged visit to the locality, and such an examination of its features as I was able to make, had produced upon me. No literature on the subject appeared to exist, and even a search in the British Museum, although I enjoyed all the assistance which the superintendent of the reading room could give me, failed to supply me with the desired data. I have recently, however, been placed in communication with Mr. Edward Kitto, the superintendent of the observatory at Falmouth, and he has most liberally and kindly sent me the details and tables, with which I trust your readers will fill up the vacuum which I regretted to leave in my former communications. All that follows is to be accepted on the authority of Mr. Edward Kitto.

The first table sent me by Mr. Kitto gives the mean temperature and humidity for eighteen years, starting from 1871.

Mean Monthly and Yearly Temperature and Humidity for Eighteen Years—1871 to 1888.

Month.	Mean Temperature of Air.	Mean Daily Range of Temperature.	Mean Humidity of Air. Complete Saturation = 100.
January	43.6°	6.6°	86
February	44.1°	6.4°	85
March	44.2°	7.4°	82
April	47.2°	8.7°	82
May	51.7°	10.0°	79
June	57.2°	10.3°	79
July	60.1°	10.3°	81
August	60.3°	9.6°	83
September	56.8°	8.4°	84
October	51.8°	7.6°	83
November	47.5°	6.9°	83
December	44.3°	6.6°	84

From this table it appears that the annual mean temperature is 50.7°, the mean daily range of temperature 8.3°, and the mean humidity 83.

The following table, giving the rainfall, begins with the year 1872, as the self recording rain gauge from which the returns are taken, was not set up until April, 1871.

Mean Monthly and Yearly Rainfall at Falmouth for Seventeen Years—1872 to 1888.

Month.	Mean Rainfall in Inches.	Mean Number of Rainy Days.
January	5.270	19.6
February	4.304	17.8
March	3.367	17.2
April	2.908	14.3
May	2.309	13.1
June	2.760	14.3
July	3.409	18.3
August	3.512	13.9
September	4.380	17.9
October	5.570	20.2
November	6.075	22.3
December	5.494	21.9
Annual	49.358	—
Monthly means... ..	4.113	17.6