COMMUNICATIONS

HISTORIES OF SOME EYE CONDITIONS AND THEIR GENERAL MEDICAL BACKGROUND*

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IN examining material which has accumulated over the years, I have decided, for the purposes of this communication, to place the emphasis on the individual case and its follow-up. I have already published some of these cases, but make no apology as they are viewed here from a somewhat different angle. I am indebted in regard to the general medical findings and diagnoses to a number of colleagues in various branches of the medical profession, and for some of the earlier histories to the private records of my father, the late Patrick W. Maxwell.

SPACE-OCCUPYING LESIONS

SECONDARY INTRA-OCULAR TUMOURS.—During the period 1928-39 I examined four women with tumours of the choroid secondary to carcinoma of the breast. The average interval between the operation for the removal of the breast and the discovery of the intra-ocular tumour was about 2 years. I found in one of these patients, who had been admitted to hospital suffering from fits, that the right eye, in addition to an intra-ocular tumour, had complete ophthalmoplegia. It would seem from her history that metastases had developed in the brain and eye more or less simultaneously. In two of the patients, tumours developed in the second eye after intervals of approximately 3 and 5 months, respectively. None of these patients survived longer than a few months after the development of the intra-ocular condition.

The two following histories have an especial interest in that metastases appeared before the primary site was known.

(1) In October, 1942, a woman aged 53 gave a history of recent failure of vision in the left eye. I found a swelling on the temporal side of the fundus, and transillumination was positive. The right eye was normal.

In the absence of any adverse general signs and symptoms it was decided to remove the eye. The pathologist reported a "slightly pigmented tumour of the choroid consisting of epithelioid cells with an alveolar arrangement—emboli were noted in two vessels; the findings were suggestive of a laryngeal growth".

In January, 1943, the patient returned with failing vision in the right eye, which was due, as I found, to a tumour on the temporal side of the fundus. Again a general medical examination failed to locate a primary focus. In the following February, however, signs and symptoms of tumour of the lung emerged, and from the clinical viewpoint the focus was now located. The patient had suddenly developed a cough with blood-stained sputum, breathlessness, and pain in the back. X-rays revealed absence of movement in the left diaphragm and displacement of the heart. At her own wish she left hospital and returned home. She died 2 months later. There was no *post-mortem* examination.

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(2) In April, 1951, a woman aged 51 gave a history of eyestrain when reading, and recent slight attacks of photopsia. I found greyish streaks running more or less horizontally just below the upper branches of the retinal vessels in the left eye, the area involved being more extensive on the temporal side. The right eye was normal.

A tentative diagnosis of choroiditis was made, but no signs or symptoms suggestive of a cause could be detected.

She returned about 6 weeks later with visual acuity in both eyes markedly defective: right 6/24, J.6.; left 6/18, J. 4. The right fundus was now similarly affected except that only the temporal side was involved. Small oedematous patches in association with the arterioles were visible in both fundi. The patient admitted at this stage to having had an occasional pain in her left side with a slight cough during the past few months, but repeated x ray of the lungs proved negative. I saw her last in October, 1951, and noted that the fundus lesions were now pigmented and apparently stationary, and that macular vision had grossly deteriorated. She was found dead in bed one morning in January, 1952, and an inquest was held. The report on the ocular pathology mentioned "large metastatic choroidal carcinomata, spenoidal-celled type, with several areas of somewhat dense fibrous stroma". A subsequent report on the lungs stated that both were affected with a "primary calcifying carcinoma, the appearances suggesting a very slow rate of growth".

PRIMARY ORBITAL TUMOURS

(3) In 1917, a woman aged 40 developed recurrent pains in the left eye and neighbourhood. She did not seek advice until 1922 when I found slight exophthalmos and was able to palpate a soft mass in the lacrimal gland fossa. The vision and ocular movements were normal.

It is obvious now that I should, at this stage, have attempted to remove the mass and have the area treated with superficial x rays. In the event, only the latter was tried, and it proved successful to the extent that, while the exophthalmos remained, the patient had no further trouble until 1926 when the pain returned. I then found gross exophthalmos and limitation of movement in the lateral direction. Marked congestion of the retinal veins provided further evidence of retrobulbar pressure. The radiologist suggested radium therapy and this was followed by a dramatically rapid, but transitory, improvement.

Later the eye developed uveitis with secondary glaucoma, and was removed, together with the accessible portion of the growth. The pathologist reported "cylindroma of the lacrimal gland". The socket was treated with radium, and the patient had a further respite until 1930, when metastases appeared in the left parotid gland and left side of the skull and spine. Two months later she became comatose and died in a few days.

(4) In 1933, a woman aged 41 developed recurrent attacks of "redness and swelling" of her right eye. A year later she was admitted to hospital, the eye having become suddenly markedly proptosed and completely blind. I found a commencing panophthalmitis which obscured any view of the fundus; the globe was immobilized. X rays of the skull and nasal sinuses were negative. A general medical overhaul failed to reveal any evidence of metastases.

The outlook was obviously hopeless and the eye was removed as it was likely to become painful in the near future. The pathologist reported "round-celled sarcoma of the orbit with invasion of the optic nerve; pigment cells not a marked feature".

A course of deep x rays resulted in a satisfactory shrinkage of the orbital tissues, but in about 3 months she returned with a gross protrusion of the tumour between the lids and suffering extreme discomfort. Again no evidence of metastases was found. Further x-ray therapy proved useless and exenteration of the orbit was done as a relief measure. This was followed by leucocytosis, a spiky temperature, and the dramatically rapid development of two readily palpable nodules in the liver. A lumbar puncture showed no sign of raised intracranial pressure. The patient died a few days later.

INTRACRANIAL MID-LINE TUMOURS.—Modern methods of localizing intracranial lesions have considerably reduced the importance of perimetry, with the exception of mid-line lesions, where its diagnostic and prognostic help is still invaluable. Under the heading “Disorders of the Endocrine Glands” instances of pituitary tumours, with the signs and symptoms associated with direct pressure on the chiasma, are noted. The two cases recorded here are instances of “neighbourhood” and “distant” pressure effects, respectively.

(5) In 1920, a boy aged 2 was treated with pituitary extract on account of stunted growth. At the age of 9 he was sent to school and was thence referred to me on account of defective vision. I found both discs pale, especially the left. Visual acuity was 6/12 in the right eye, and counting fingers in the left. There was asymmetrical bitemporal hemianopia. X rays showed a normal sella. A pituitary stalk tumour was postulated, but, in the absence of headache, an operation was not considered justifiable. The shape of the fields now began gradually to change, and by 1931 had assumed the form of a right incongruous homonymous hemianopia. It was also about this time that pareses developed of the right foot, hand, and lower part of the face. An exploratory operation revealed a growth involving the temporal half of the posterior end of the left optic nerve and extending into the left optic tract. The growth, which was removed in two stages, was reported as a “glioma”.

The last time I saw the patient, then aged 33, was in 1951. Visual acuity was 6/18 and J.4. in the right eye, and perception of light in the nasal field in the left. He was apparently so used to the field defect and slight pareses on his right side that they gave him comparatively little trouble. Despite obesity his general health seemed good. His height was approximately 4' 8". He seemed quite intelligent. His main difficulty was, as it had always been, an inability to concentrate for any reasonable time; this had inevitably prevented him from undertaking sustained work.

(6) In 1927, a woman aged 35 developed amenorrhoea and slight numbness of the left arm. Some months later the left leg became similarly affected and she began to suffer from defective vision, drowsiness, and occasional vomiting. I examined her in 1929 and found mild swelling of the optic discs, vision in both eyes reduced to counting fingers, and bitemporal hemianopia. X rays revealed absorption of the posterior clinoid processes. A further finding, of subsequent importance, was a lump on the top of her head, slightly to the right of the mid-line—this the patient told us had appeared some months before, after a knock on that area.

Tapping the lateral ventricles furnished no evidence of raised intracranial pressure, but resulted, nevertheless, in all-round improvement. Papilloedema was replaced by slight optic atrophy, and though there was no change in the visual acuity in the right eye, the left improved to 6/12. At this stage the shape of the fields began to change, settling finally into an asymmetrical inferior altitudinal hemianopia.

Some months later there was a relapse. Papilloedema recurred and the right eye became completely blind. The left hand lost all sense of touch and “grasping and groping” was noted in the left foot. As some space-occupying lesion affecting the anterior half of the right frontal lobe seemed obvious, the patient consented to operation. A large piece of bone, with the major part of an underlying growth, was removed at the site of the aforementioned lump, and the area was then treated with a course of deep X rays.

The growth was reported an “endothelioma”. Its removal was followed by disappearance of the papilloedema, return of light perception in the right eye, and improvement in the left limbs. About 18 months later she wrote to the effect that she was able to read with the left eye without any difficulty, that she could still see light with the right eye, and that though there was a weakness on her left side she could “get about with the help of a stick”.

INTRACRANIAL ANEURYSMS.—The emphasis in the three following cases is on the visual defects. The diagnoses of posteriorly situated cirroid, supraclinoid, and subclinoid aneurysms, respectively, were based on clinical evidence.

(7) In 1951, a man aged 40 was admitted to hospital in a comatose condition. On regaining consciousness he was found to be blind; the pupils reacted normally. Upward, vertical and left lateral conjugate palsies were present. Other findings were subarachnoid haemorrhages, encircling the left optic disc and presenting at the upper nasal edge of the right disc, and blood in the cerebrospinal fluid. A fortnight later the latter was still present and the retinal findings unchanged. The patient was now becoming drowsy, and he died a few days later.

(8) In 1936, a woman aged 54 had recurrent attacks of headache which "would last a whole day". Some 10 months later, while lifting a sack of potatoes, she experienced a "sudden terrible pain" on the right side of her head and neck extending towards the left. Her right eye became blind and for a few seconds she could see nothing with the "outer half" of the left eye. She then became unconscious and woke up in her bed where she remained for some weeks.

On her subsequent admission to hospital, I found the right eye blind and visual acuity 4/60 in the left. Owing to her general weakness it proved impossible to test the left field. Both optic discs showed slight pallor. An x ray of the chiasmal region was negative. Dependent on an improvement in her general health, and on what angiography might subsequently reveal, ligature of the right common carotid was considered. About a month later, however, she died suddenly from the effects of a cerebral haemorrhage.

VISUAL DEFECTS ASSOCIATED WITH RETINAL DISTURBANCES.—The result of pressure on the venous back-flow by subarachnoid haemorrhages would seem to be usually of a transitory nature. In this connexion it is interesting to note the different end-results in the two eyes in the following case.

(9) In 1931, a woman aged 46 was admitted to hospital with a recent history of vomiting and defective vision. An x ray of the skull was negative; blood was present in the cerebrospinal fluid. I found a gross pre-retinal haemorrhage in association with congestion of the central retinal vein in the right eye, and dense clouding of the vitreous, obscuring any view of the fundus, in the left. Complete palsy of the left 3rd nerve developed 3 months later.

In 1932 the nerve was showing signs of recovery and the visual acuity in the right eye had become normal; there was no change in the left eye, the vision being hand movements.

In 1939 I had an opportunity of examining the left eye further; the clouding of the vitreous was as dense as ever, and the eye was now diverging.

In associated ocular palsies the 3rd nerve is most frequently involved. The horizontal movements may recover more rapidly than the pupillary and vertical. The following is an instance of a time-lag in the latter.

(10) In 1935, a man aged 49 developed a violent headache and double vision in association with a complete palsy of the left 3rd nerve. The symptoms disappeared after ligature of the left common carotid. When I saw him in 1938 pupillary and horizontal movements were completely restored, but double vision was still present in the extreme vertical positions.

In the next case the 6th nerve was involved.

(11) In 1947, a woman aged 61 developed attacks of giddiness. In the following year she was admitted to hospital suffering from severe headaches. Blood was present in the cerebrospinal fluid. Rest in bed effected a rapid recovery, the only untoward incident being a transitory palsy of the left 6th nerve.

She was re-admitted to hospital 3 months later in a state of collapse. I found bilateral palsy of the 6th and of the medial branch of the left 3rd nerve. General findings were blood in the cerebrospinal fluid, rigidity of the neck, pains in the arms and back, and slight calcification of the sella. As the blood pressure was 180/110 and retinal arterio-sclerosis was present, surgical measures were not considered. The double vision and various pains gradually disappeared over a period of some 2 months.

In 1951, she developed headache on the right side and there was a return of double vision. She was again admitted to hospital, and I found complete palsy of the right 3rd nerve. There was no blood in the cerebrospinal fluid on this occasion. In a few days she went home, the headache having disappeared, and the nerve already showing signs of recovery.

DISORDERS OF THE ENDOCRINE GLANDS

PITUITARY ADENOMATA.—The first of these cases is an instance of hyperpituitarism, the second and third of hypopituitarism. The fourth may be classified as an anomalous type. The diagnosis of tumour rested on the general findings, more particularly the visual field defects and x-ray appearances of the sella turcica. I have no follow-up of cases in which surgery was employed.

(12) In 1938, a woman aged 38 noticed signs of progressive acromegaly. In 1950 she developed headaches and occasional epistaxis and herself noted the loss of her left temporal field. Investigations revealed a raised blood pressure and enlarged sella. The question of surgery was discussed, but, being a widow with three children still dependent upon her, she decided to take the lesser risk and give radio-therapy a trial. I saw her some weeks after the completion of the first course and found visual acuity 6/6 and J.1 in the right eye, and counting fingers in the left; there was slight pallor of the disc. An asymmetrical bitemporal hemianopia was present. During the following 18 months, despite a brief rise in blood pressure with an associated arterio-sclerotic retinopathy, there was a gradual all-round improvement. Visual acuity in the left eye rose to 6/9 and J.1, and the fields became almost normal. Then came a relapse, and a second course of radiotherapy was given. The resultant widening of the fields and fall in blood pressure was much more rapid on this occasion, but a relapse occurred within a few months, and a third course was given with good results.

Stated briefly, the findings (normal vision of both eyes and wide fields) remained stationary within the period March, 1953, to May, 1955, but it was otherwise with her general health. She developed pyloric and duodenal ulcers, and more recently attacks of drowsiness and depression. In December, 1954, her blood pressure was 250/140. A fourth course of radiotherapy was given, and this was followed by a great improvement physically and mentally. A recent x ray of the sella showed marked increase in size, particularly posteriorly; pressure is obviously shifting away from the chiasma and towards the hypothalamus.

It is pleasing to be able to add that, despite these ups and downs, this woman's hopes have been fulfilled. She has succeeded in maintaining the home and in helping her children in their start in life.

(13) In 1920, a woman aged 46 gradually developed failure of vision, obesity, and premature senility. She had had amenorrhoea for years and was a nullipara. In 1921 she consulted me on account of sudden loss of sight in her right eye. Visual acuity was perception of light in the right eye, and 6/12 and J.2 in the left. Asymmetrical bitemporal hemianopia and bilateral retinal arterio-sclerosis were present; the sella was grossly enlarged. Substitution therapy in the form of thyroid extract was ordered and taken, probably very irregularly, throughout the following years. A few months later the vision in the better eye fell to 1/36, and the patient consented to a course of radiotherapy. Shortly after this, the vision in both eyes was 6/9 and J.2, but there was a relapse a year later, at which stage pallor of both discs was noted. A second course was followed by an

equally successful but equally temporary improvement. One morning in 1929 she woke to find herself "stone blind", presumably as a result of a haemorrhage into the tumour. I noted bilateral arterio-sclerotic retinopathy. Not surprisingly, a third course of radio-therapy failed to restore any vision. In 1932 her obesity increased, and the sella was reported as completely destroyed. She became bedridden and died a few months later. There was no *post-mortem* examination.

(14) In 1914, a woman aged 52 noticed failure of sight in the right eye; a doctor ordered her glasses which were "useless", and in 1917 another told her that the right eye was "amblyopic" and that "nothing could be done for it". By 1920, when she consulted me, clues to diagnosis were emerging: headaches, loss of hair, and very definite pallor of the right optic disc. Visual acuity in the right eye was 6/36, and in the left 6/6 and J.1. There was asymmetrical bitemporal hemianopia, and the sella was enlarged. She was ordered substitution therapy, thyroid, and "mixed gland" extracts, and proved very cooperative in carrying out the instructions. In 1932, the eyes showed little change, but the sella was revealed as "enormously enlarged" and the headaches had increased in severity. Operation to relieve the latter was refused, and radio-therapy seems never to have been discussed. Later, she became lethargic and developed attacks of extreme drowsiness. In 1939, when she was aged 77, I heard that she was still alive—still existing would more aptly describe her condition.

(15) In 1942, a man aged 46 developed difficulty in reading with his right eye, his left eye having been defective for some years. Glasses having proved a failure, he came in 1943 to consult me. Visual acuity in the right eye was 6/24 and J.6, with no colour perception; in the left eye it was reduced to counting fingers, and the disc was pale. There was asymmetrical bitemporal hemianopia, and x rays showed enlargement of the sella with evidence of bone destruction. A neuro-surgeon advised a trial with radiotherapy and, if that failed to stay the disease, operation at some later date. The patient himself was opposed to operation whatever happened. In the event, a course of radiotherapy produced a favourable response within 3 weeks. Visual acuity in the right eye rose to 6/12 and J.2, with some return of colour vision, and gradually, over the next two years, the fields widened. There was no improvement in the central vision in the left eye. The position in 1947 was very satisfactory and the patient ceased to attend, at his own wish.

In the spring of 1954, I asked him to come and see me. Visual acuity in the right eye was then 6/18 and J.4, with marked contraction of the temporal field; in the left it was only perception of light in the nasal field. There was now pallor of both discs. Careful questioning revealed the recent development of attacks of drowsiness. An x-ray report showed "pituitary fossa destroyed and ballooned". A second course of x-ray therapy in October was followed by improvement in the right central and peripheral vision. In May, 1955, I found that this improvement had been maintained, but the patient's general health seemed to be failing. He had just recovered from an attack of arterio-sclerosis obliterans in both legs, and slight cardiac weakness was reported. The accumulated findings suggested that the tumour was now extending in the direction of the hypothalamus.

THYROID GLANDS.—In the three following histories, various points of interest emerge in connexion with exophthalmic goitre:

(16) About 1900, a woman aged 23 had her right eye removed on account of "secondary glaucoma". In 1929, then aged 52, she consulted me on account of a recent sensation that the glass eye was being pushed out of the socket, and about 3 weeks later her left eye became proptosed. An x ray of the orbits revealed nothing abnormal. It now seemed clear that the retro-orbital tissues were exerting a forward pressure on both the living and the glass eye. There was no palpable swelling in the neck but she was emotionally unstable, and treatment for exophthalmic goitre would have been justified. The patient proved her own worst enemy. She rushed all over Europe seeking advice from many physicians, and never taking it. Eventually, she consented to a course of iodine, which

resulted in a dramatically rapid disappearance of the exophthalmos. Unfortunately, a widespread phlebitis developed shortly afterwards, and this was followed by pneumonia, from the effects of which she died.

(17) In 1931, a woman aged 39 developed a slight exophthalmos of the left eye, together with a rapid pulse and general nerviness. In 1932, she had a course of x-ray therapy followed by a partial thyroidectomy. This resulted in a gratifying improvement in her general condition, but a marked exophthalmos developed shortly afterwards in her right eye, while that in the left increased; 6 months later a reading of 24 mm. was obtained with the exophthalmometer in both eyes; after another 6 months there was no change. The case was not followed further.

(18) In 1945, a woman aged 34 developed tachycardia, fatigue, and slight bilateral exophthalmos. She was treated with thiouracil and, though her general condition improved, some weeks later she developed "double vision" when looking at near objects on "the right hand side". Where one or more muscles may become involved in a generalized orbital oedema, exact location may be difficult. My findings did no more than suggest that the medial and both vertical recti in the left eye were the ones mainly affected. The double vision disappeared in a few months, and when I saw her 3½ years later, she reported that she had had no further trouble with her health.

Histories are appearing in the literature of patients who have developed thyroid disturbances after treatment with para-amino salicylic acid (P.A.S.). The following case is suggestive:

(19) In 1937, a woman aged 27 developed a bilateral uveitis of the chronic tubercular type. She had frequent subacute attacks throughout the succeeding years, and during one of these, in the autumn of 1952, I decided to try P.A.S. in association with streptomycin. The course extended over 2 months without effecting any obvious improvement in the eye condition. Approximately 3 months later, she developed a swelling in her neck and other signs and symptoms of thyrotoxicosis, including slight bilateral exophthalmos. Investigations revealed a basic metabolic rate of +33. Her doctor ordered Neomercazole, and a year later reported "complete clinical recovery". During this attack, there was a remarkable clearing of the ocular media, and there has been no flare-up of the uveal condition up to the time of writing—that is, approximately for 2½ years. This is the longest quiescent period in the history of her uveitis. The thyrotoxicosis seems to have acted as a beneficial stimulant.

SUPRARENAL GLANDS.—This is the only case of Addison's disease with ocular complications of which I have a record.

(20) In 1950, a woman aged 32 had an attack of "influenza", which was followed by recurrent weaknesses and vomiting in association with low blood pressure, and generalized yellow pigmentation of the skin. Desoxycortisone acetate was prescribed. After some months, she developed a mild attack of iritis in the left eye, and 3 weeks later an attack in the right eye. These attacks responded rapidly to local treatment, but in the spring of 1951 she became suddenly comatose and died shortly afterwards.

PANCREAS.—Diabetes presents many points of interest. It is thought that the appearance of the disease is frequently preceded by a long subclinical period during which various manifestations of disordered metabolism may appear. The following case is suggestive:

(21) In 1906, a woman aged 54 noticed a sudden increase in size of two xanthomatous patches which had been present, one on each upper lid, for some time past. One of them became so large that it had to be excised. In 1915, she consulted me about glasses. The remaining patch had not changed in any way, and she seemed in excellent health. In

1926, she returned on account of defective vision, and I found marked diabetic retinopathy, with gross glycosuria and albuminuria. Clinical diabetes had obviously been present for some considerable time.

The disease is now accepted as a phase in a generalized disorder of the endocrine system, rather than as an entity.

(22) In 1912, a woman aged 30 was found by chance to have diabetes, and insulin was given as from 1926. In 1936, she developed exophthalmic goitre, and subsequently had a thyroidectomy. When I saw her in 1947, I found diabetic retinopathy; this was later overlaid by an arterio-sclerotic retinopathy in association with raised blood pressure. By 1955 her vision had been still further reduced by incipient cataract, but her interest in life was as active as ever.

I have only three instances of associated ocular palsies in my records, and it seems probable that, in the first two, the association was with an existing arterio-sclerosis rather than with the diabetes.

(23) In 1951, a man aged 53 began to suffer from "sore feet". When, some months later, he developed double vision, he consulted a doctor. Investigations in hospital revealed diabetes, and decalcified areas in some of his toes. One toe had to be amputated on account of necrosis. I found a palsy of the right 6th nerve, and a mild retinal arterio-sclerosis. He was given insulin, and 3 months later the palsy had practically disappeared.

(24) In 1932, a man aged 60 developed double vision. He told me that for some months past he had been suffering from diabetes. I found a palsy of the left 6th nerve, and medium retinal arterio-sclerosis. The palsy disappeared in about 6 months.

(25) In 1927, a woman aged 64 developed double vision. She had suffered from diabetes for some years. I found a bilateral palsy of the 6th nerve. There was no evidence of arterio-sclerosis in this case. The palsy disappeared in about a month.

Neuritic pains would appear to be a fairly common complication, but not, I think, in connexion with the following ocular condition:

(26) In 1952, a woman aged 68 was admitted to hospital with pains in her right thigh. Diabetes was discovered, and it was found possible to stabilize the condition with dieting.

The pains gradually subsided, but reappeared after some months, this time in the right shoulder. Some weeks later, her right eye became red and painful. This, I found, was due to episcleritis on the nasal side. Cortisone ointment was ordered, and the condition gradually subsided. It was reported 1½ years later that there had been no recurrence of the episcleritis.

Retinopathy is naturally of major interest to the ophthalmologist, though he can do nothing to prevent its development or retard its progress. Granted that insulin would appear to have failed as a preventative, and that some other approach to the problem may yet emerge, two pertinent questions may be asked: has the last word in regard to insulin preparations been said? The answer lies with the research chemists. Is the existing insulin always given a fair trial? The answer, in regard to certain types of patient, is "No". There are, for example, the deliberate defaulters. Both my worst offenders in this respect had diabetic mothers, and seemed to have adopted a fatalistic attitude, having heard too much of what they should, and should not, do. Then there are those who wander amongst the doctors, with consequent loss of continuity in their treatment. Finally, there are the unfortunates who may become insulin-resistant, and those whose stabilization is upset by every passing physical or mental disturbance, as in the following example:

(27) In 1941, a woman aged 29 developed diabetes. She was much interested in her own very complicated case and, having some medical knowledge, frequently interlaced prescribed treatment with ideas of her own. Being, apart from this, very intelligent, I thought she was just the person to give me a picture of the diabetic life from the patient's point of view. Her cooperation was overwhelming—her letter covered 47 pages.

If insulin is to be given a fair trial, the development of more and more "diabetic centres" seems indicated.

DISEASES OF THE NERVOUS SYSTEM

ENCEPHALITIS LETHARGICA.—During the years 1924-28, I had the opportunity of examining several patients admitted to hospital in the acute stage. In only one of the cases which did not survive the attack did I find associated eye conditions.

(28) In 1928, a woman aged 40 was admitted to the eye hospital with a right retrobulbar neuritis, for which I could find no cause. Some time after this, she developed a right hemiplegia, and was finally admitted to a general hospital in a drowsy condition and with a spiky temperature. A diagnosis of encephalitis lethargica was made, and intravenous urotropin was given. A few weeks later she died. A *post-mortem* examination was obviously indicated in this obscure case, but the relatives raised an objection.

The findings in two children who survived the attack are noted below:

(29) In the first, there was a bilateral palsy of the 6th nerve, which had disappeared a month later.

(30) In the second, there were a sluggish right pupil, bilateral vertical nystagmus, and marked weakness of convergence; these findings were still present 2 months later, but then only to a very mild extent.

The following case is of interest because of the long history:

(31) In 1925, a woman aged 30 became infected, and in 1935 I saw her in connexion with a paralysis of the accommodation. She had recently shown signs of Parkinsonism, and been ordered medicinal atropine. The accommodation became normal when the drug was stopped. When I next saw her in 1949, she had developed marked rigidity of the neck, and complete loss of convergence, and was now amental. She died suddenly in 1953, but the cause was not determined.

DISSEMINATED SCLEROSIS.—Histories of patients with this disease are often difficult to trace. The doctor/patient relationship may be ideal during a remission, but tends to disintegrate during a relapse, and with a new medical adviser continuity of records may be lost. In connexion with ophthalmological investigations, I am gratified to note that within recent years "pallor of the disc" as a diagnostic aid has lost ground. In the past I have often been asked to report on its presence or otherwise in doubtful cases, but in the absence of perimetric tests, I have never ventured to give an opinion on such an equivocal sign.

Despite a certain vagueness, the following four cases with their associated eye findings have some interest:

(32) In 1905, a man aged 22 developed double vision when looking to the right. This persisted and, when I examined him in 1928 in connexion with glasses for reading, I found a sluggish right pupil and palsy of the right 6th nerve. The vision was normal. The patient informed me that he had been told years before that he had disseminated sclerosis. In 1932, I received a report to the effect that the patient had now developed a progressive atrophy of the right optic nerve.

(33) In 1936, a woman aged 24 developed double vision, which lasted for about 3 weeks. In 1946, this recurred and, as on the previous occasion, disappeared in a short time. In 1949, after a severe emotional shock, her right foot became paralysed, but gradually recovered. In 1951, I examined her in connexion with a return of the double vision. Her doctor reported the case as either disseminated sclerosis or hysteria. I found a palsy of the left 6th nerve. Central and peripheral vision was normal—a screen test failed to reveal any scotomata. On this occasion, double vision persisted for about 5 months. In 1952, she experienced transitory sensory disturbances in her right arm and hand. She came to see me in 1955, at my request. She told me that she had had no further trouble with her eye; that her right leg was weak; and that she had a slight numbness in the fingers of her right hand. She added that she had long decided against submitting to any further general medical examinations, and so the matter rests.

(34) In 1945, a woman aged 34 had a sudden transient attack of double vision, and 2 months afterwards, she noticed a blur over the sight of her right eye; this became gradually worse, and eye movements became painful. When I saw her a week later, the visual acuity was reduced to counting fingers, the peripheral field and fundus being normal. In order to shorten this attack of retrobulbar neuritis, I gave her protein shock therapy. Within a week, the vision had improved to 6/9 and J.4. A general medical examination revealed exaggerated reflexes on the right side, and a diagnosis of disseminated sclerosis was made. 6 months later, the reflexes were normal, as was also the vision in the patient's right eye, though a screen test revealed a relative enlargement of the lower part of the blind spot. In 1946, a slight paresis of one leg led to a reshuffle of doctors. In 1951, I heard that in 1948 she had suffered from other slight pareses, all of a transient nature, but was now enjoying the best of health, and had had no further trouble with her eye.

(35) In 1950, a man aged 35 developed, quite suddenly, ptosis of the left lid and a nystagmus of the left eye when looking towards the right. These happenings were followed by "double vision and slurring of speech". He was said to have recovered within a week but a fortnight later I was able to observe nystagmus with the eye in the extreme medial position, with naturally some associated disturbance of convergence. Some weeks after this, he was able to resume his clerical work, and in 1952 was reported as having had no further trouble with his health. Unless there are further developments, the diagnosis here is, of course, merely suggestive.

SUBACUTE COMBINED DEGENERATION OF THE CORD.—This is my only record of associated eye trouble in this condition.

(36) In 1935, a woman aged 51 began to experience difficulty in walking. Her doctor made the above diagnosis, and she was given liver injections. In 1936, her left vision became suddenly blurred, the defect gradually increasing. About a week later, I found the visual acuity to be 6/12 and J.4; the peripheral field was slightly depressed, and a screen test revealed an absolute enlargement of the blind spot below, and a relative enlargement extending to the fixation point. The fundus was normal. I made a diagnosis of retrobulbar neuritis. Within 3 weeks, the vision had improved, but during 1937 there were two transient relapses. In this year, she was given vitamin B, but it caused a marked feeling of fatigue and had to be discontinued. In 1939, the vision was practically normal, but it was again somewhat reduced in 1941, when I noted slight pallor of the optic disc. In 1953, her doctor reported that she had had no acute trouble with her eye since 1937, and that her general condition was practically unchanged.

HERPES OPHTHALMICUS.—While the acute phase was severe objectively, this patient suffered little pain or discomfort; I suggest that this was the result of a high temperature acting as a self-made protein shock, the resultant stimulation of the body defences being established at a sufficiently early stage to buffer sensation.

(37) On June 5, 1950, a woman aged 71 developed a "feverish chill". The next day she complained of pain on the left side of the forehead, and 2 days later an extensive crop of vesicles, with the characteristic distribution of herpes ophthalmicus, appeared, extending to the tip of the nose and slightly involving the cornea. After 5 days, papules appeared on the right cheek and both arms, and were soon spreading in various directions. This new development was diagnosed as chickenpox. All this time, the temperature had been gradually rising, and it was about 103°F. when the papules appeared. The two infections subsided quickly and without incident. The aftermath of neuralgia pains was practically non-existent, but the patient did develop a mild and transitory left iridocyclitis, and later palsies of the left 4th nerve and internal fibres of the 3rd nerve. The 4th nerve and accommodation recovered in a few months, but the pupil was still non-reactive and slightly enlarged 42 years later. The incubation period being longer in chickenpox than in herpes, it would seem possible that these two virus infections developed more or less simultaneously.

RETINITIS PIGMENTOSA.—In the first two cases, the emphasis is on associated nerve deafness, in the second two, on pituitary dysfunction.

(38) In 1885, a woman aged 21 noticed defective distant vision, nightblindness, and slight deafness. A subsequent examination revealed myopia, typical retinitis pigmentosa, with medium all-round contraction of the fields, and attenuated retinal vessels, and nerve deafness. When I saw her in 1924 there were now posterior polar lental opacities. Later, I removed the right cataract, and a visual acuity of 6/9 and J.1, resulted, but this did not last long, as the fields gradually closed in almost to the fixation point, and a progressive optic atrophy developed. Before her death in 1939, she had become stone deaf and almost completely blind.

(39) In 1905, a congenital deaf-mute aged 13 was examined in connexion with defective vision. He was found to have typical retinitis pigmentosa and a high degree of mixed astigmatism. Visual acuity with correction was 6/12. When I examined him in 1918 I found an increase in the myopic element; visual acuity with correction was only 6/60, and the left eye was tending to diverge. At this time there were already signs of mental deterioration, and in 1922, it was found necessary to put him in a mental home.

(40) In 1935, a man aged 40 was admitted to hospital with a history of nightblindness for as long as he could remember, and increasing obesity during the past 5 years. I found retinitis pigmentosa of an atypical type, the pigmented areas being somewhat diffusely scattered and more numerous on the nasal side of the fundi. The central vision was normal, there was an asymmetrical bitemporal hemianopia. General findings included an enlarged sella and a basal metabolic rate of +54. X-ray therapy of the pituitary area was under consideration, when the patient died suddenly from a pulmonary embolism. A grossly enlarged pituitary tumour was found at the *post-mortem* examination, but no details as to type were available.

(41) In 1939, a girl aged 15 noticed, since leaving school in the previous year, that her sight was failing and that she had developed nightblindness and increasing obesity. I examined her in 1941 and found the visual acuity reduced to counting fingers. Retinoscopy showed hypermetropic astigmatism. She had retinitis pigmentosa of an atypical type, in that, in addition to the usual findings at the equatorial zone, there were pigmented areas grouped near the maculae. The retinal vessels were attenuated and discs somewhat pale. Perimetry was impossible owing to sluggish cerebation. General findings included a blood pressure of 145/85, weight 14½ stone, and a somewhat small sella. In 1942, her condition had further deteriorated, and her relatives were arranging to have her put in a mental home.

DISEASES OF THE BLOOD AND LYMPHATIC SYSTEM

ACUTE LEUKAEMIA.—The routine use to-day of differential blood counts, where a

diagnosis is in doubt, has revealed diseases of the blood itself at an earlier stage than formerly. The following three cases are instances of faulty initial diagnosis due to the absence of early blood tests. The familiar retinal picture, hæmorrhages with white centres, was seen in both the types recorded here. It must, I think, be admitted that this finding plays a very small part in the general leukaemic pattern; it would seem to have no differential value, nor, in the final phase, any particular prognostic value.

(42) In 1939, a woman aged 46 developed a sore throat and conjunctivitis. Some time later, she was admitted to hospital as a case of "Vincent's angina". A blood examination revealed a monocytic leukaemia, and blood transfusions were given. A week later, her left eye became suddenly proptosed, and then gradually receded. She died about 3 weeks after admission, and at the *post-mortem* examination the marrow of the femur was found to be "very cellular but with no evidence of chloroma in association with the periosteum". The orbit was, unfortunately not examined. It can, I think, be assumed that the proptosis was caused by a sudden gross hæmorrhage.

(43) In 1938, a woman aged 32 developed a bronchitis from which she never properly recovered. About 2 years later, she developed headaches, blisters on her legs and lips, and a "swinging temperature". She was admitted to hospital with a diagnosis of "septicæmia". Examination of the blood and marrow revealed myeloid leukaemia. She was given blood transfusions, but died a few days after admission.

(44) In 1940, a man aged about 35 developed a "progressive weakness". Some 4 months later, he was admitted to hospital as a case of "pernicious anaemia". A blood examination revealed a myeloid leukaemia. Blood transfusions were given, but death occurred a few days later.

CHRONIC LEUKAEMIA

(45) In 1935, a man aged 58 developed an increasing sense of fatigue. He was found to be suffering from a mild form of lymphatic leukaemia. In 1938, his general health began to deteriorate, and he was given courses of irradiation. This enabled him to continue in his profession for about 3 years, when it became apparent that the courses were now failing in effect. He developed a chronic bronchitis and, some weeks later, had a sudden epis-taxis in association with serious deterioration of vision in his right eye. In addition to a bilateral "leukaemic" retinopathy, I found a gross hæmorrhage at the right macula, which explained the sudden deterioration of vision. He died 3 months later.

APLASTIC ANAEMIA

(46) In 1943, a woman aged 29 developed thyrotoxicosis, and later had a thyroidectomy. Her health continued to be "poor", and in 1949 she was admitted to hospital as a case of "pernicious anaemia". Investigations revealed aplastic anaemia. My examination of the retina showed somewhat enlarged veins, soft exudates, and hæmorrhages, some of which had whitish centres. A blood transfusion caused no change, but a second was followed by marked improvement. She was given a course of these, and at the end of 2 months, her red blood count had increased from 1 to 3 million, and hæmoglobin from 16 per cent. to 65 per cent. 5 years later, her doctor reported that she had been in good health ever since.

SPLENIC ANAEMIA

(47) In 1939, a woman aged 39 developed a feverish chill and loss of weight. On admission to hospital, the general findings included an enlarged spleen, hypochromic anaemia, leucopenia, and a tendency to bleeding. Evidence of the latter was found in the fundi where numerous hæmorrhages and some gross oedematous patches were visible. After

two blood transfusions, the retinal findings disappeared almost completely, and she developed a general sense of well-being, and, full of confidence, began to make plans for the future. Then came a relapse, and a few days later she was dead. She suffered severe mental distress in the last phase, and the question arises whether blood transfusions in advanced cases are not at times a cruelty rather than a benefit.

RETINAL COMPLICATIONS IN EXSANGUINATION.—The rarity of this condition makes this case worth recording.

(48) Some years ago, a man aged 65 was admitted to hospital suffering from weakness following recurrent haemorrhages associated with a duodenal ulcer. About a week after the haemorrhages had stopped, he noticed defective vision in his right eye. I found slight pallor of the disc and oedematous patches above the macula. Visual acuity in the left eye was normal, but there was some oedema around the disc margin. A month later, visual acuity in the right eye was 6/9 and J.1, though the fundus findings had not quite disappeared. The left fundus was now normal. The patient had no further trouble with his eyes. He died at the age of 74 as the result of "thrombosis of one of the large vessels near the heart".

LYMPHADENOMA

(49) In 1942, a man aged 27 developed a swelling in the left maxillary region. This was excised and the pathologist reported that one half consisted of "tissue containing multi-nucleated cells suggestive of Hodgkins' disease", while the other consisted of "caseous tubercular tissue". In 1945, he developed a swelling in the left parotid region which disappeared after a course of x-ray therapy. In 1952, after an attack of diarrhoea, his left eye became blind, some vision returning 2 hours later. On admission to hospital about 2 days after this, I found a greyish swelling in the upper temporal area of the fundus. There was an associated gross haemorrhage extending downwards over the macula, the obvious cause of the defective vision. A screen test revealed a relative scotoma corresponding to the swelling. General findings included negative tuberculin tests and a normal blood count. An x ray of the left side of the face showed no bony erosion in the previously affected areas. About a month later, visual acuity in the left eye was 6/24 and J.12, and 3 years later, it was 6/6 and J.1, with no trace of any disturbance in the fundus. This case is obscure, but so suggestive of the chronic form of Hodgkins' disease with remissions, that it seemed worth recording.

PRIMARY ("ESSENTIAL") HYPERTENSION.—These three cases emphasize certain aspects of this condition. In each patient, a sympathectomy was performed. The first case illustrates the initial symptomless stage.

(50) In 1941, a man aged 38 was found during an examination for life assurance to have a raised blood pressure. His heart and kidneys were normal. In 1945, he developed headaches. In 1950, he had a slight stroke affecting his right side; the systolic pressure at that time was 240. After a course of hexamethonium, the blood pressure fell, but it rose again after 3 months, at which stage the sympathectomy was performed. 8 months later, he had no headaches and had practically recovered the use of his right limbs, and the blood pressure was stabilized at about 175/105. He had a mild retinal arterio-sclerosis. In 1954, though the tempo was slower, the patient was still carrying on his clerical work.

The second history suggests that a hypertension, secondary to the toxæmia of pregnancy, was superimposed upon a primary one.

(51) In 1942, a woman aged 29 was found, during a normal first pregnancy, to have hypertension. Her father had died of cerebral haemorrhage at the age of 62. In 1947, al-

buminuria was noted during the early weeks of a second pregnancy. Owing to extreme fatigue, she spent most of the period in bed. A colleague who examined the patient at one stage reported to me "retinal angio-spasms". After the birth, she continued to suffer from excessive fatigue. In 1949, the findings were moderate cardiac enlargement, blood urea 82 per cent., a variable blood pressure (one reading was 212/136), and moderate retinal arterio-sclerosis. Sympathectomy was performed in this year. Her general health greatly improved, and approximately 4½ years later she was reported as leading a normal life.

The third case is an example of the danger in delay in seeking medical help, the patient's eye "changes" being already irreversible when he was first seen.

(52) In 1949, a man aged 52 was admitted to hospital with a history of general malaise, dizziness, and failing vision, these symptoms having increased during the past few months. His only brother had had a slight stroke at the age of 52, and, 2 years later, a second, more severe one, from which he died. His three sisters were healthy. The findings were a blood pressure of 195/110, slight cardiac enlargement, an increase in blood urea, and a bilateral arterio-sclerotic retinopathy especially marked in the left eye. After sympathectomy, the blood pressure fell, and there was a dramatic disappearance of the retinal haemorrhages with corresponding improvement in vision. The improvement in the right eye was sustained for about a year, but was only transitory in the left. Just over 2 years after the operation, visual acuity in the left eye was reduced to light perception, the result of gross retinitis proliferans. That in the right eye was 6/12 and J.4, with marked retinal arterio-sclerosis and some degree of macular degeneration. His doctor reported at this time that, while the reduction in blood pressure had lasted for only 6 months after the operation, the patient no longer suffered from his former adverse general symptoms, provided he did not over-exert himself.

I have seen a similar rapid disappearance of retinal haemorrhages in patients with primary hypertension before modern treatments came into use. The most striking instance however, was that of a case in which the diagnosis would seem to have been malignant secondary hypertension.

(53) In April, 1940, a woman aged 34 developed albuminuria during a first pregnancy, and 3 weeks later gave birth to a still-born infant. At that time, her fundi were normal. In September, a blood pressure of 270/155, cardiac enlargement, and marked retinal arterio-sclerosis were recorded. In December, she had an attack of cerebral thrombosis, accompanied by an increase in the albuminuria. I found diffuse gross haemorrhages and oedematous patches in the fundi, with visual acuity reduced to counting fingers. Owing to her serious general condition, a further examination of the fundi was delayed for 2 or 3 days and, by then, the picture had completely changed. The gross haemorrhages and oedema had disappeared, and of the retinopathy only a few minute haemorrhages and exudates in association with arterioles remained. The visual acuity in both eyes was now 6/6 and J.1. The albuminuria had disappeared at this stage, but the blood pressure remained high. 2 months later, the patient died suddenly from the effects of a cerebral haemorrhage.

DISEASES OF THE SKIN

BASAL-CELLED CARCINOMA.—Some years ago, patients with gross destruction of the lids and neighbourhood, the result of neglected "rodent ulcers", were to be seen quite frequently in any eye dispensary. This case is an instance of what has been achieved by improved treatment, and better public education regarding the danger of delay.

(54) In 1950, a woman aged 61 noticed a small reddish spot on the edge of her left upper lid. When a few months later it began to increase rapidly in the lateral directions, she sought advice. The growth lying astride the lid margin, a biopsy was not done, but the clinical appearance left no doubt as to the diagnosis. With the eye protected by a contact lens "coated" with lead, three x-ray exposures of the affected area were given. Some weeks afterwards, the growth had disappeared, with the loss of only three eye-lashes, and 3 years later the patient reported "all well".

SQUAMOUS-CELLED CARCINOMA

(55) In 1939, a woman aged 58 had her right breast removed on account of cancer. I saw her in 1940 with a slight swelling of the right upper lid; this proved transitory, but some months later a hard swelling appeared on the top of her head and later again similar swellings in both upper lids. At an examination in 1942, lid elevators proved necessary, but I found the eyes healthy, and vision normal. Her doctor described the condition as "metastatic carcinomata of the skin". A biopsy was not done. The patient had severe secondary anaemia, and the end was obviously near.

(56) In 1951, a man aged 51 developed an ulcerated growth involving the outer third of the right lower lip. This was excised, and proved to be a "squamous-celled carcinoma"; 18 months later, some coal-dust blew into the left eye, and the slight trauma was followed by the development of an ulcer involving the conjunctiva at the upper limbus. This failed to respond to local antiseptic treatment, and eventually began to spread rapidly, mainly over the cornea. A biopsy of the involved tissue revealed "squamous-celled carcinoma, and small, round-celled infiltration". Had a biopsy been done at an earlier stage, some form of radiation therapy might have helped, but, in the event, enucleation was now the wisest course, and as the eye had become very painful, the patient welcomed the suggestion. In 1955, I found the condition of the socket and lip very satisfactory. The eye condition may have been a metastasis, the injured site providing especially favourable soil. If so, the period of time since the excision of the lip cancer is hardly long enough to enable us to exclude the possibility of other metastases appearing in various places.

MELANOMA

(57) In 1938, a man aged 46 noticed a slight discolouration of the skin at the margin of the left lower lid near the outer canthus. In 1943, this began to spread rapidly, and some months later, I found a pigmented growth involving the entire lateral half of the lid, together with two minute pigmented growths involving the conjunctiva near the inner canthus. A diagnosis of melanoma was based on the clinical findings, and its malignant character on the history of its recent activity. The radiologist was averse to either x-ray or radium therapy, and my advice as to exenteration of the orbit was not acceptable to the patient. I took a gloomy view of the man's expectation of life, and was agreeably surprised to receive a report from his local ophthalmologist in 1950 that his general health was excellent, and that a slight increase in the conjunctival growths was the only change in the ocular condition. In the following year, however, invasion became apparent in the form of two growths, one on each side of the neck. A biopsy of one of these revealed "malignancy", and in 1953 the patient died, approximately 10 years after the first sign of activity in the lid growth.

LYMPHOMA

(58) In 1937, a woman aged 76 was admitted to hospital with a conjunctival tumour occupying the whole length of the right upper fornix and protruding beneath the lid. Similar smaller tumours were noted in both fornices of the left eye. She stated that the swelling in the left lower fornix had been there for as long as she could remember, the others having developed within the past year. A biopsy showed "lymphoma or possibly

lympho-carcinoma". The blood picture was normal. A course of x-ray therapy having produced no effect, I excised the tumours in the upper fornices; there was no recurrence 6 months later, but towards the end of 1939 she was readmitted with a swelling of the left cheek invading the side of the nose and upper alveolar arch. Refusing a further trial of x rays, she returned home, and in 1941 her right cheek became similarly involved. She died the following year from "general debility".

ALLERGIC CONDITIONS.—Owing to frequent allergic reactions, the use of the sulphonamide ointments in bacterial skin diseases would appear to have been recently abandoned in favour of the antibiotics. The interest in the following case is, therefore, mainly historical:

(59) In 1948, a man aged 23 developed small red patches on the skin in the neighbourhood of the right outer canthus. These caused considerable irritation, and sulphathiazole ointment was prescribed; 3 days later, owing to oedema of the lids, he was unable to open his right eye. I found marked oedema of the cornea, with a corresponding defect in vision. At this stage, the patient disclosed that, 3 years previously, he had been treated with a course of ultraviolet light for extensive impetiginous eczema. The recent skin condition was obviously a mild recurrence. Calamine lotion and benadryl were now prescribed, and within 3 weeks the oedema had disappeared, the vision had returned to normal, and the affected skin area had recovered; 4 months later, the patient reported "no further trouble".

(60) In 1938, a boy who had suffered from infantile eczema since birth and was now aged 2½ complained of pain in his left eye. I found a group of small superficial corneal infiltrates the area becoming subsequently ulcerated with recurrences during the next 10 years. When the condition had finally become quiescent, he developed bilateral phlyctenular conjunctivitis, fortunately a brief attack.

His two sisters, and other members of the family on the paternal side, also suffered from infantile eczema, asthma being present on both sides of the house. His eczema seems to have been much more severe and crippling than in the other members of the family. His mother stood between him and every difficulty which arose, and I thought she was making a mistake. The last time I saw him was in connexion with reading glasses, when he was aged 22. There seemed a marked all-round improvement in his general condition, but I noticed a new and disturbing element, in that he had developed a vindictiveness towards his mother for what she had made of him.

CONTACT VACCINIA.—The cause, sleeping in bed with a recently vaccinated child, was similar in both these cases, but the course of the disease was very different:

(61) In 1938, a woman aged 35 developed, about a week after contact, bilateral ulceration of the lid margins with an associated oedema of the lids. I saw her shortly afterwards, but it was not until a month had passed, without improvement, that she consented to come into hospital. Rapid recovery followed hospitalization, and when I saw the patient in connexion with reading glasses 3 years later, she reported that she had had no further trouble.

(62) In 1942, a woman aged 49 developed pain in her left eye about 10 days after contact. A few days later, she was admitted to hospital with pyrexia, and I found a vaccination pustule on the lower lid. The oedema was so marked in both lids that it was impossible to examine the eye till the following day, when I noticed ulceration of the lid margins, and a keratitis involving the lower half of the cornea. She was given M and B tablets, and atropine and optochin ointment locally. The pustule healed rapidly, but the other conditions continued to give trouble for some weeks. The eye was quiescent 4 months later, at which date fusion of the lids at the inner canthus involving the puncta, and slight symblepharon in the neighbourhood, were noted. When I examined her in 1952 there

was no change. She was opposed to any attempt at repair of the lids as her only trouble was "watering of the eye" when she had a cold, and "slight double vision on looking sideways".

MISCELLANEOUS CONDITIONS

TUBERCULOUS MENINGITIS.—The majority of the histories appear in my earlier records, the subsequent decline being due in part to the direct admission of such patients to a specialized fever hospital when possible, and in part to the lowering of the incidence of tuberculosis which has naturally been running parallel with the rise in the standard of living and improved methods for early diagnosis and treatment.

Most of the patients I examined had been admitted to hospital in an acute stage, the disease proving rapidly fatal. I noted a papillitis in the majority of the children, whereas a perineuritis was the more frequent finding in the adults. In one of the latter who survived longer than the others, I was able to observe the gradual development of optic atrophy. Bilateral palsy of the 6th nerve was noted in several instances.

Since 1948, streptomycin has proved itself a potent weapon against tuberculosis. Unfortunately, the bacillus occasionally acquires a resistance to the drug, as is seen in the following history:

(63) In 1951, a girl aged 15 was admitted to hospital suffering from miliary tuberculosis of the lungs. Streptomycin and P.A.S. produced a marked improvement when, approximately 3 months after the commencement of the course, meningitis developed. My examination of the fundi at this stage revealed a scarred area in each eye, obviously the sites of choroidal tubercles which had developed in the early stages and succumbed to the initial treatment. There was a small fresh choroidal tubercle near the nasal margin of the left disc, and a very large one near the nasal margin of the right disc. The activity of the latter was evidenced by the fact that after a few days it was found to have invaded the nerve head. The patient died a few weeks later.

Choroidal tubercles, while apparently having only a limited diagnostic value, may, as in this case, provide useful visual evidence of sudden changes in virulence.

SYPHILIS.—In the earlier part of the period between the world wars, I examined a number of patients with oculo-motor palsies, optic atrophy, and Argyll-Robertson pupils. One man with tabes dorsalis had marked bilateral miosis, the only instance of the classical Argyll-Robertson pupil in my records.

The decline in the number of these patients in the general wards was due to the establishment of specialized centres. It may also be noted that since the introduction of penicillin the actual incidence of eye complications has fallen, since the drug tends to prevent the development of those later stages in which such complications usually occur. The two following cases show atypical features.

(64) In 1911, a woman aged 40 developed spastic paraplegia and cystitis; she was known to have been suffering from syphilis for some years past. In 1915, a sudden violent headache was followed by the loss of the upper field of vision in the left eye. When I saw her 2 days later, there was no perception of light, and slight pallor of the disc, and eye movements had become painful. She was given mercurial inunctions, and a week later could perceive light in the nasal field. This was followed by a very gradual visual improvement. The interest lies in the fact that in this retrobulbar neuritis the initial visual defect was peripheral, not central as is usual; 7 years later the visual acuity was 6/18, and there was no appreciable change in her general condition.

(65) In 1951, a girl aged 15 developed pain in her left eye; I found a mild iridocyclitis, a small salmon patch at the limbus, and slight circumcorneal injection in the right eye. The uveitis cleared rapidly but an exceptionally gross bilateral interstitial keratitis, particularly virulent in the left eye, developed. A Wassermann reaction was strongly positive. In view of the girl's age, it is not surprising that the interstitial keratitis was attributed to congenital syphilis, but subsequent inquiries brought to light that the disease had been comparatively recently acquired through sexual intercourse. The general treatment consisted of penicillin injections, and later mapharside and bismuth. A course of sub-conjunctival injections of cortisone produced an immediate and dramatic improvement in the right eye, which 3 months later was quiet, with a visual acuity of 6/9. At this stage, the vision in the left eye had improved from hand movements to 6/18, but this eye was still very irritable, and cortisone, in the form of ointment, was continued for some weeks. At her last visit to the hospital in 1953, her ocular condition was reported as satisfactory.

With regard to congenital syphilis, the marked increase in interstitial keratitis after the first world war will be remembered. In the Dublin Eye Hospital an increase has also been noted since the second, though it is very slight in comparison. While the pre-natal clinic is a valuable preventive agent, its work is limited; in order to avoid further tragedies, every fresh case should have its background fully investigated. It is questionable whether the specialized centres are being utilized to the full in this respect.

BACILLARY DYSENTERY AND GONORRHOEA.—These conditions have been grouped together, since the syndrome of conjunctivitis (hyperaemic type with little or no discharge), anterior uveitis, and polyarthritis may be associated with both. When stationed in Malta during the first world war, I had the good fortune to work with that keen observer, the late Mr. Walter Kiep. Detailed histories of six patients suffering from dysentery referred from the Balkan front to our ophthalmic department were published jointly (Maxwell and Kiep, 1918). All six had been infected with the *Shiga* bacillus; in the course of the disease all developed anterior uveitis, and four developed polyarthritis. Conjunctivitis was not noted, but it had probably disappeared before the men reached Malta, for observers at the front reported conjunctivitis to be an early and transitory association. Amongst the many cases we examined, there was only one whose subsequent history I was able to follow:

(66) In 1917, a woman aged 30 became infected with the *Flexner* bacillus while nursing dysenteric patients in a hospital in Malta. On the sixth day, she developed a transitory conjunctivitis, and on the 37th a mild anterior uveitis. At no time had she any arthritis. We returned to the British Isles about the same time, and during the next 2 years I had the opportunity of observing a number of recurrent attacks. These became gradually milder, and the periods between them longer, and when I last saw the patient, they had practically ceased. Her vision was at no stage affected.

While the verdict of dysentery was non-proven in the following case, the clues are interesting:

(67) In 1918, a soldier aged 22 developed an acute attack of diarrhoea while stationed in Egypt. Neither he nor anyone else regarded it seriously. In 1934, after a hunting accident, his sight was "misty" for a short period. In 1945, while stationed in India, he developed bilateral anterior uveitis, and was invalided home, where a thorough investigation, including that of the bowels, failed to reveal a cause. In this year he came under my care, and I observed recurrent attacks, which gradually petered out in about 5 years. One of them was associated with pain in the right hand, another with "sciatica" in his left leg.

In 1955 he had an appendicectomy, and the operating surgeon reported thickening of the transverse colon which, in his view, supported a diagnosis of chronic dysentery.

The exact date of the initial infection in these two cases of gonorrhoea was, unfortunately, not recorded, but their histories furnish examples of the syndrome. The success of antibiotic treatment in the early stage of this disease is apparently tending to give such cases a purely historical value.

(68) In 1913, a man aged 40 developed bilateral conjunctivitis, anterior uveitis in the right eye, and polyarthritis. Recurrences were frequent, and in 1922 I examined him in the course of one. The uveitis was mild, and recovered rapidly with local treatment, and vision was not affected. In 1926, he consulted me about glasses and reported that during the past 4 years he had had several attacks of pains in the joints associated with reddening of the eyes. The latter was due, presumably, to hyperaemia of the conjunctiva. He added that the attacks were now so mild that he never bothered about them.

(69) In 1921, a man aged 46 developed bilateral conjunctivitis, anterior uveitis in the left eye, and polyarthritis. I saw him in 1923 with a severe recurrence of the uveitis with hypopyon; arthritis in the lower limbs had also recently worsened, and he could only get about with the aid of crutches. The uveitis recovered in about a month, leeches having proved particularly helpful. In 1925, he had another attack of severe uveitis with hypopyon, and a recurrence of the arthritis. In 1930, he had a third attack, again with hypopyon, but the arthritis had then practically disappeared. The eye condition recovered in a fortnight; there were no posterior synechiae and the vision had become normal. I did not see him again.

REITER'S DISEASE.—This emerged as an entity in the second world war. It is hardly surprising that, with its associated syndrome of urethritis, conjunctivitis, and polyarthritis, it was apt to be confused, in the early days, with gonorrhoea.

(70) In 1947, I examined a man who had contracted the disease while serving on the desert front. While other signs and symptoms had long since disappeared, he was concerned with the persistence of redness of the eyes. I found the conjunctival hyperaemia very slight, and the condition was obviously on the wane.

SARCOIDOSIS.—The following three cases instance some of the varied lesions characteristic of the condition:

(71) In 1936, a man aged 29 had an attack of pyrexia, night sweats, and difficulty in breathing. X ray of the lungs was negative. He got better, but 3 years later had a similar attack; x ray now revealed enlargement of the mediastinal glands and of the spleen, which accounted for the difficulty in breathing. Slight persistent albuminuria and occasional epistaxis were noted. Later, small nodules appeared on his face, and in 1943 I examined him in connexion with small superficial translucent nodules near the lateral limbus of the right eye. There was slight secondary corneal involvement. The patient refused a biopsy of the conjunctiva. The left eye was soon similarly involved. In 1945, he developed an anterior uveitis of the right eye, with recurrent attacks during the next 2 years. I saw him last in 1949, when visual acuity in both eyes was normal, the right eye was quiet, and the bilateral conjunctival nodules had almost completely disappeared. He was non-cooperative in regard to a follow-up.

(72) In the spring of 1939, a woman aged 30 developed pains in her back and abdomen, followed shortly by a painless swelling of the left parotid gland. On admission to hospital about 3 weeks later, x ray revealed "enlarged hilar glands but no parenchymatous changes". There was no pyrexia. A week later, the right parotid became involved and there was palsy of the right facial nerve. At this stage, I noted papilloedema in the right eye, and a few days later blurring of the nasal edge of the left disc. A month after

admission the parotid swellings had subsided. After 3 months, there was no improvement in the palsy, and the optic nerves still showed slight "changes". She left the country shortly afterwards but wrote in the autumn of 1940 that, while her eyes had been recently examined and found normal, there was still a slight weakness on the right side of her face.

(73) In 1950, a man aged 36 developed a swelling of the parotid glands, the diagnosis being one of mumps. When, 2 years later, there was a recurrence, followed by a persistent dryness of the throat and redness of the eyes, he was admitted to hospital, and I found a marked bilateral hyperaemia of the conjunctiva, with little or no discharge. The main general findings were a mild leucopenia and loss of weight, erythema nodosum involving both upper and lower limbs, and shotty glands in various places. A biopsy of one of these showed the nodules of epithelioid cells characteristic of the condition. X ray of the lungs showed typical diffuse mottling. The patient was treated with streptomycin and zinc sulphate drops for the conjunctiva, but there was no improvement. The addition of intramuscular injections of cortisone produced rapid results; within 3 days, the conjunctiva had become normal, and within a month, he was free of any adverse symptoms.

The following case invites comparison with Cases 72 and 73; swelling of the parotids was a common finding, but developed after the ocular condition, and not before it. This was the only instance of a typical uveo-parotitis in my records.

(74) In 1942, a woman aged 25 developed a sudden feeling of lassitude associated with pains in her shoulders. A few days later, her eyes became red, and I found a mild bilateral anterior uveitis. Some days later, she developed a palsy of the left facial nerve, in association with a swelling in the parotid gland. 3 weeks later, a similar condition developed on the right side. X ray of the lungs was negative. The uveitis cleared up satisfactorily in about 3 months, and the palsies disappeared in about the same time, but a slight swelling of the glands persisted for about 4½ months. When I saw the patient in 1954, she was married with three children, and had never had any further trouble with her health.

The following is the only case in my records in which there would seem to have been a tuberculous association.

(75) In 1940, a man aged 29 developed over a period of some months painful swellings at the tips of several fingers and toes. X ray revealed decalcification of the affected parts and enlarged hilar glands. Biopsy of the skin of the right thumb showed typical sarcoid "changes". Tuberculin tests were negative. In 1941, the vision in the right eye became defective, and I found nodules lying anterior to the retinal vessels on the temporal side near the optic disc. Perimetry revealed corresponding scotomata. In 1942 Dr. David Mitchell published the case in detail (Mitchell, 1942). Subsequently, the eye condition deteriorated, and the nodules coalesced assuming a yellowish tinge. The choroid was now obviously affected, and later the entire uveal tract, as evidenced by a low-grade anterior uveitis noted in 1944. At this stage, the various skin lesions were quiescent. In 1945, the patient developed tuberculous meningitis and died.

EXOGENOUS POISONS.—These cases have some scarcity value.

(76) In 1913, a man aged 30 developed defective vision. He was a heavy drinker and smoker. On the advice of an ophthalmologist, he reduced the drinking and gave up smoking. His vision improved, but eventually remained stationary at a subnormal level. In 1926, presbyopia accentuating his visual defect, he came to see me. The visual acuity with correction was 6/18 and J.4 in both eyes, and further examination seemed to confirm tobacco amblyopia, but there was no question but that he had strictly followed the advice given in 1913. The problem was solved by the information that he owned a tobacco shop,

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and was constantly handling shag, a popular variety in the neighbourhood. I advised him to transfer this part of the business to his son, and 6 years later his doctor reported that the patient had done this, and that a rapid and permanent improvement in sight had followed.

(77) In 1924, a retired doctor of over 80 years of age developed a rapidly progressive difficulty in reading. He consulted someone who asked him "what else could he expect at his age". Hoping for something more concrete, he sought another opinion. My findings suggested tobacco amblyopia, and it emerged that he had been both a heavy pipe-smoker and a morphia addict for many years. Though at that time, I had never heard of tobacco amblyopia developing at such advanced age, I suggested that he should give up smoking. He agreed to do this with enthusiasm—he had feared I was going to pick upon the morphia—and 4 months later, he was reading with comfort.

(78) In 1924, on a certain Monday morning, a man aged 44, employed as a porter in a drug store, found he had mislaid the key of the cupboard which contained "absolute" alcohol. For years he had been in the habit of drinking small quantities of this as a means of clearing his head after his routine weekend drinking bouts. Unluckily for himself, "wood" alcohol was available, and during the morning, he took sips of this, amounting in all to about 3 oz. About 9.30 p.m. his vision became blurred, but it was normal again in the morning. After his midday meal he had a slight and brief attack of vomiting. An hour later, he became blind. He was brought to the dispensary the following day. I found no light perception, the optic discs were somewhat pale and the edges blurred. It was not until the end of the fourth day that the patient revealed the above history. He was given strychnine injections and potassium iodide, but by this time it was too late, and he never recovered any vision. Some weeks later, I found white cupped discs and constricted retinal vessels. Had the patient's initial general toxæmic symptoms been somewhat more marked, he would presumably have sought medical help immediately, when a gastric lavage with sodium bicarbonate might have averted the tragedy of complete blindness.

(79) In 1944, a woman aged 50 switched from whisky drinking to methylated spirits, at first because it was cheaper, afterwards because she preferred it. About 1½ years later, she came to me on account of defective vision and "nervousness". The visual acuity in both eyes was 6/60 and J.12. There were gross central scotomata, the peripheral fields were normal, and there was slight pallor of the optic discs. On my advice, she consulted a psychologist, who found peripheral neuritis in her feet and ordered vitamin B. He told me he could not help her further, since cooperation was lacking, as we had feared it would be. Her general health deteriorated, and 5 years later, she died in a state of utter misery and squalor.

(80) In 1937, a woman aged 42 ate something which disagreed with her while on a visit to Russia. She developed a high temperature, and pains all over her, and some days later her right pupil became enlarged. A doctor diagnosed botulism. I saw her some months afterwards and found the pupil dilated and non-reactive to light and accommodation. In 1939, I found no change. About a year later, however, her daughter reported that the pupil was now no longer enlarged.

PSYCHOGENIC DISORDERS

SHOCK.—During the years 1916-17, a number of soldiers suffering from this condition were transferred from the Balkan front to Malta. General symptoms such as headache, insomnia, anorexia, and fatigue, in various degrees, were common to all of them. In most of the cases referred to the ophthalmic department, we found depression of central vision, contraction of the white fields with spiral fatigue curves, and colour inversion, the blue fields lying within the red. Recovery was slow, extending, on an average, over 3 months.

In the following case, that of a patient whose history revealed a somewhat similar nervous breakdown in the past, recovery was even slower:

(81) In 1917, a man aged 20 was forced to descend by parachute from an observation balloon which had been attacked by a Bulgar airman. On a second ascent, his balloon was again attacked, and had to be lowered to the ground. At this stage, he began to "feel nervy". Nevertheless, he was sent up again 2 days later. On this third ascent, the balloon was so tossed about by a gale that, to quote his own words, "I had to crouch at the bottom of the basket to prevent throwing myself over the edge". Being now incapacitated, he was transferred to Malta where, in addition to the various signs and symptoms noted above, he was found to have exaggerated knee jerks, ankle clonus, trembling fits, a feeble grasp, bilateral paralysis of accommodation, and double vision in association with a periodic convergent squint. Hypnotism was tried without success. Some weeks later, he was able to tell us that, after a motor accident in 1911, he had developed an attack of chorea and stammering, which lasted for 4 months. When I left the island about 3½ months after his arrival there, he was only just beginning to show definite signs of improvement.

Where the histories can be followed up, a background of organic disease may emerge, as in the following case:

(82) In 1943, a girl aged 19 received a severe shock when a piece of plaster fell off the ceiling and nearly struck her. The next day, she developed a severe headache and her vision became blurred; she was admitted to the local hospital, where at first meningitis was suspected, and a diagnosis of hysteria was made later. On returning home, she became completely blind, and was sent to the eye hospital in Dublin. I found no perception of light, the pupils were dilated and immobile, and the fundi normal. In order to let her feel that something was being done to help her, I put a drop of zinc sulphate in both eyes. Within an hour, the pupils were normal, and the visual acuity was 6/6 and J.I. This happy result proved permanent, but 2 years later she died of some form of tuberculosis. I was unable to obtain further details.

EMOTIONAL STATES.—It is by no means rare to find, in cases of trauma or organic disease, a diplopia in association with a transitory breakdown of convergence, or with the development of a transient manifest squint in patients with a previous heterophoria. The background in the following instance is, however, unusual:

(83) Many years ago, a woman aged 26 developed eye-strain while studying for an examination at the university. I found a low error of refraction and marked convergence insufficiency. She was unable to shorten the periods of study as advised, became nervy, and finally morbidly obsessed with the idea that she was incapable of the work. To her consternation, she suddenly developed double vision a week before the examination. When the matter was explained, she consented to having one eye bandaged until the eve of the event. Relieved of convergence strain, she recovered rapidly and passed the examination without difficulty. From the point of view of heredity, it is interesting that her father had had a nervous breakdown during his university career through a similar obsession.

(84) In 1935, a girl aged 12 began to mope and lost her appetite. Her parents had recently separated, and home, as she had known it, had ceased to exist. A diagnosis of hysteria was made. In the following year, her left pupil suddenly became dilated. I found an immobile pupil associated with loss of accommodation. A Wassermann reaction was negative. There was no change 3 months later, but, in 1937, I found that the pupil was smaller, and inequality was only noticeable when she was facing the window. The pupil still remained inactive to light, but contracted slowly on convergence, dilating still more slowly when convergence was relaxed. Accommodation was now normal. I did not, unfortunately, see her again, but a medical report in 1938 was to the effect that, while she had suffered recently from a mild attack of "orthostatic albuminuria", her general health had greatly improved; the size of the pupil was not noted.

(85) In 1946, a girl aged 8 developed a periodic concomitant divergent squint of the left eye. I found a low degree of hypermetropia and good stereoscopic vision. Eye exercises

were suggested, but the parents thought her too highly strung, and it was not till 1949 that investigations were carried out in the orthoptic department. Synoptophore readings showed abduction 15° and adduction 35° ; that is, a divergence excess in association with a normal convergence. Though of questionable value, exercises were given a trial, but they had to be soon discontinued as she became extremely excitable and eye-conscious. When assured that her eyes were healthy and that she could rest them by holding things as far off as possible, the emotional state gradually subsided. In 1953, she developed a mild degree of myopia in her right eye and a suitable correction with a plane glass for the left eye was ordered for close work. About 18 months later, her mother reported that the child, now aged 16, was much more normal and had ceased to worry about her eyes.

SENILE MELANCHOLIA

(86) In 1949, a woman aged 72 became depressed after the death of her husband. She went to live with a son and completely recovered her spirits, until in 1952 he married and she found it impossible to get on with his wife. She then went to live with another daughter-in-law but found her equally difficult. While she was there the vision in her right eye suddenly failed. I found a partial thrombosis of the central retinal vein and a marked bilateral retinal arterio-sclerosis; her blood pressure was 195/120. Some months later, she developed melancholia and was admitted to a mental hospital. Electroplexy was considered and I was asked if the eye condition was a contraindication. In my then state of ignorance, I said that, in my opinion, it was, but because of her serious mental condition, it was decided to accept the risk. A course, controlled by scoline and pentothal, was followed by a marked improvement in her general health and spirits. I saw her some weeks afterwards in connexion with glasses for her left eye, when the visual acuity with correction was 6/6 and J.1. The vision in the right eye was naturally still defective. There was no sign in either fundus of the treatment having caused any adverse changes. About 2 years after the completion of this course, this improvement was still maintained. The patient had adopted the plan of wandering from one son's house to another, never staying long enough to allow her allergic reactions to daughters-in-law time to develop.

CONCLUSION

When I commenced private practice, I started a cross-index of diseases which has proved invaluable, especially in work of this kind. Cross-indexing received little general attention in those days. It is interesting to note that in 1952 discussions on medical records as a whole had reached the high level of an international congress.

The investigations in connexion with this paper have given me a very practical demonstration of the changing face of medicine—bits and pieces constantly merging into an ever-expanding pattern. The specialist and small general hospitals have done, and are still doing, most useful work, but it seems to me that large comprehensive medical units are better fitted to deal with the problems of to-day.

The general practitioner has assisted me by filling in gaps in medical histories on several occasions. I realize and appreciate, more than ever, his status as the king-pin of clinical medicine.

I have already acknowledged my indebtedness to my colleagues in general; I take this opportunity of acknowledging it in particular to the medical staffs of the Dublin hospitals to which I have been attached as ophthalmic surgeon—The Adelaide Hospital, Jervis St, and The Meath General Hospital.

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