at the bedclothes. The irksomeness of lying still in bed in one position is very real and doubtless accounts for such a complication after an operation for senile cataract. In contrast we may rarely find much more acute cases of delirium, which, in a heavy drinker, may easily amount to delirium tremens. Such a catastrophe is more likely to occur in a case where there has been an emergency operation for acute glaucoma or eye injury. It is not perhaps so common as in cases of fracture, but it can occur. Such cases are very difficult to manage. The eye may easily suffer damage during such an attack, and special nurses, night and day, are essential; together with shackles for the hands, if mischief is to be avoided. The treatment of the delirium may be attempted by numerous drugs. An old teacher of the writer's used to draw gloomy pictures of the effects of the morphia syringe in such cases, and adjure us to pin our faith to full doses of bromides in good stout.

Paraldehyde will probably subdue the condition as quickly as anything; and one of the most important points in treatment is to induce sleep at almost any cost.

If all else fails we may remember the story told by Dean Ramsay in his "Reminiscences of Scottish Life and Character," where a nobleman was very ill and unable to sleep. His physicians were in perplexity as they considered that, unless sleep could be obtained, there was little chance of recovery. The son of the house, who had always been considered a little daft was within hearing of the consultation and suddenly called out "'Sen' for that preachin' man frae Livingstone, for faither aye sleeps in the kirk." This advice was acted on with excellent results!

ABSTRACTS

MISCELLANEOUS


(1) As is well known Bristol stands third in order of foundation among the English eye hospitals. It was founded in 1810, and is only preceded by Moorfields, 1804, and Exeter, 1808.

W. H. Goldwyer, of a well known Bristol medical family, was the prime mover of the foundation, which met with such success.
that at the end of the first year more than 2,000 patients had been treated.

The Duke of Gloucester was nominated as first patron, and was succeeded by his Duchess in 1817, and by the Duke of Beaufort in 1858.

For many years the work was carried on in Lower Maudlin Street, next the Blind Asylum.

The present high position of the hospital is due to the late Richardson Cross, who was elected Surgeon in 1882. His interest in the hospital was one of the main features of his life.

As time went by extensions became necessary to allow of coping with the work, and recently the entire hospital has been rebuilt. The foundation stone was laid on November 27, 1933, and the building was opened by the Duchess of Beaufort on October 21, 1935.

The paper is illustrated by a picture of the new hospital and by the reproduction of a silhouette of Mr. W. H. Goldwyer.

R. R. J.

(2) Courville, C. E. (Los Angeles).—Multiple primary tumours of the brain. Amer. Jl. of Cancer, April, 1936.

(2) Courville here presents a long paper containing accounts of 21 cases of multiple gliomata with a review of the literature upon 113 cases of what appear to be bona fide instances of this condition. A good proportion of the author's own cases showed a bilateral papilloedema and the paper is illustrated by diagrams of the brain showing the sites of the tumours. His summary and conclusions are as follow:

1. Almost every variety and combination of multiple intracranial tumours occurs. In most cases, the occurrence of tumours arising from two separate tissues is largely a matter of chance. On the other hand, a number of cases of multiple tumours of the meninges (meningiomas), of the nerve roots (central neurofibromatosis), and of the brain (gliomas) have been reported suggesting some predisposition to the formation of multiple tumours.

2. The incidence of multiple gliomas in a series of autopsies is about one and one-half to a thousand. They constitute 4.3 per cent. of intracranial tumours in general and in the author's series about 8 per cent. of gliomas. About 10 per cent. of multiform glioblastomas are multiple while only 6 per cent. of astrocytomas coming to autopsy are multiple.

3. In most cases the cerebral hemispheres were the seat of the multiple tumours. These may be grouped into three classes: (1) that in which both hemispheres are the seat of the tumours,
symmetrical regions being affected in about half the cases; (2) that in which the corpus callosum and one hemisphere are affected; (3) that in which one hemisphere alone is affected. Multiple gliomas of the encephalic neuraxis, the ventricles, or the cerebellum are much more rare.

4. The individual tumours vary considerably in size, degree of invasiveness, and in the nature and degree of regressive change. Tumours of different size may be present in a given case, suggesting either a difference in their degree of malignancy or in their time of genesis. Solid, haemorrhagic and cystic tumours may also be found in a single case.

5. In the majority of cases the tumours prove to be multiform glioblastomas. Multiple astrocytomas or other types are much more rare. In the author's series, multiple astrocytomas were found only in the cerebellum (vermis and lobe) and thalamus. It is possible that other types of gliomas may be multiple (gangliogliomas, etc.).

6. The development of multiple independent foci is the only logical explanation for widespread tumours. In the case of small satellite tumours about a larger growth, it is possible that the larger tumour may "infect" or stimulate the development of the smaller foci (discontinuous growth). The distribution of the tumours and the arrangement of anatomical structures seem to exclude the possibility of metastases by way of either arterial or venous channels, the perivascular channels, or the cerebrospinal fluid.

A bibliography of 43 items concludes a valuable paper.

R. R. J.


(3) A number of cases of retinal haemorrhage in epidemic dropsy were reported last year by Bhaduri. His conclusions were shortly as follows:

The haemorrhages were usually in the superficial layers and in two of his cases subhyaloid haemorrhage was present. The haemorrhages were mainly at the posterior pole, in some cases on the disc and along the macular branches. The haemorrhage was usually from the smaller vessels. There was absence of serous exudation and marked venous congestion. The female sex preponderated. The intra-ocular tension was raised, but not to a high degree. The rate of absorption was on the whole rather rapid, but the subhyaloid cases took a long time to disappear, and no fresh recurrences were observed.
Bhaduri and Biswas now report four more cases. The first occurred in a boy of 18 years of age who showed a "D" shaped haemorrhage at the left macula. The intra-ocular pressure was 64 mm. Hg. (Schüttz) which in the course of six weeks came down to normal on treatment with miotics. The fundus took 3 months to clear up and vision of 6/6 resulted.

The second case was in a girl of 14 years, with subnormal intraocular tension. Her right eye showed two large patches of haemorrhage on the papillo-macular area.

The third case was in a man of 28 years, with normal intra-ocular tension and numerous haemorrhages in each eye.

The fourth case was in a married woman of 36 years of age, with normal intra-ocular tension and a few small haemorrhages in each eye. In her case the intra-ocular tension rose to a considerable height just as the retinal haemorrhage cleared. She refused operation.

The authors have recorded the case histories of these four patients in great detail. Each of these patients was suffering at the time from some form or another of secondary anaemia. The first had kala-azar on admission. It is to be noted that the blood condition in no case had any deleterious action on the rate of absorption of the haemorrhages.

The paper forms an interesting study of a rare complication and is illustrated by a colour plate of the fundus of Case 1 and a chart showing the scotoma.

R. R. J.


(4) Sallmann reports 3 cases of folds in the retina in cases in which the globe was compressed by lesions invading the orbit—a condition first described and studied anatomically by him.

In one case a mucocele of the frontal sinus led to a 10 mm. exophthalmos and the formation of retinal folds; the vision was reduced to hand movements. A second case was also due to the same cause; papilloedema was present. In the third case a pseudo-tumour of the orbit was the cause of the exophthalmos and retinal folding. Reviewing the 11 cases hitherto recorded, mucocele of the frontal sinus was found in 5 instances and malignant tumours in 3.

Arnold Sorsby.

(5) Mamola and Bellina have examined their subjects in various ways with the aim of discovering whether the hypophysis was performing its functions normally; they have found in most cases evidence of abnormality. They have treated the patients by injecting the hormone of the anterior lobe intramuscularly and have found improvement follow. They think that their results point to the disease being due to some disturbance of the endocrine glands, and especially of the hypophysis.

HAROLD GRIMSDALE


(6) Richner has collected the cases of familial or inherited detachment of the retina he found recorded in the literature, and tabulates a series of eighteen cases observed by Vogt.

The immediate cause of retinal detachment is to be found in senile and presenile (in axial myopia and senile with axial myopia) degenerative changes at the periphery of the retina and choroid, and in the production of these changes microscopic obliteration of vessels perhaps plays a part.

Senile degenerations are signs of heredity, and certain types of degeneration in the myopic fundus are familial in character and conform to the laws of heredity. If the senile and presenile changes are inherited, it is also possible that the conditions arising from such changes are hereditary.

From an examination of these collected cases the author concludes that the inheritance of retinal detachment can only be indirect, in so far as the degenerative changes in the periphery of the retina and choroid under certain conditions predispose to retinal detachment, but do not necessarily cause it. This indirect inheritance explains the relative infrequency of inherited spontaneous amotio retinae, whereas the predisposing factors, cystoid peripheral degeneration of the retina, choroidal atrophy in myopia of more advanced years and also in old age with emmetropia and hypermetropia, are of very much more frequent occurrence.

The vitreous probably plays a much less important rôle in the aetiology of retinal detachment than has hitherto been ascribed to it.

THOS. SNOWBALL.

Kugelberg discusses the application of infra-red photography of the fundi through opalescent media. Though theoretically the penetrating rays should prove valuable within limitations, in practice it is so difficult to obtain clearly defined photographs of fundus lesions, that the method has no place in clinical ophthalmology.

ARNOLD SORSBY.

Pillat, A. (Vienna).—Fundus findings in lupus erythematosus. (Fundusbefunde bei Lupus erythematosus).


Pillat reports that in 48 cases of lupus erythematosus, a careful exploration of the fundi revealed lesions in 16 eyes. The changes led to no visual disturbances and were mostly situated towards the periphery. In 14 of the 16 cases the appearances were those of old scars, in two those of fresh choroiditis—both groups being indistinguishable from tuberculous choroiditis.

Bergmeister recalls a case of miliary tubercles in the retina in a patient with lupus erythematosus who died from tuberculous septicaemia.

ARNOLD SORSBY.


Boros reports that in 29 per cent. of cases of optic neuritis no aetiological factor can be established. He undertook control examination in his cases after 2-3 years, but could only trace five. Of these, four now showed definite signs of disseminated sclerosis.

ARNOLD SORSBY.


Seefelder adds another family tree to those reported as showing the association of cataract with poikilodermia. [Ophthalmoscopic changes were reported by Grönblad in 1933: *Acta Ophthal.*, Vol. XI, p. 461].
The association of cataract with skin disease was first described by Rothmund in 1868 and recently the subject was reviewed by Kubelberg [Abstract in this Journal, Vol. XIX, p. 222, 1935].

In Seefelder's family the grandparents were consanguineous; two of the affected children showed both the lens and the skin lesion, one the skin affection alone. The after history of Rothmund's original family is given and it appears that such of the patients as had both the skin and the eye lesion were sterile. Undescended, hypoplastic testes were present in the affected boy in Seefelder's family.

ARNOLD SORSBY.


(11) Within the compass of a few pages Yudkin and Arnold give an admirable survey of "the present highly speculative status of the etiology of cataract." Cataract has been produced in experimental animals in various ways, e.g., by administration of naphthalene or thallium, or by removal of the pancreas or parathyroid. The lesion can also be produced by nutritional methods, e.g., by a diet low in tryptophane or low in vitamin G content or by one containing an excess of lactose or galactose. The latter sugar was found to be the more efficient, amounts as small as 25 per cent. of the total diet being sufficient to produce cataract in 14-21 days. The opacity began in the nucleus in young albino rats and in the cortex in older animals. With lactose, the proportion required is 70 per cent. and the opacities do not appear until the 70th-94th day. There are several possible modes of action of galactose. 1. Through disturbances of calcium metabolism, by mobilising the calcium content of the body, the amount of calcium in the urine increases at the expense of the faecal calcium. 2. By the direct toxic effect on the lens of galactose in the aqueous. The relationship between lack of calcium is evident in diseases such as tetany and hypoparathyroidism; it is also supported by the work of Bourne and Campbell who found it impossible to produce naphthalene cataract in rabbits when the blood calcium was kept at a high level by the ingestion of food such as cabbage.

Against this is the observation that cataractous lenses contain an excess of calcium, but this can probably be explained as the normal response of the body to injury of tissue, calcium infiltration being a well-known pathological change in other parts of the body.

At the present time however there is little evidence to show...
that disturbance of calcium metabolism is the direct cause of cataract. Thus Bourne and Campbell showed that naphthalene is detoxicated in the rabbit partly by combining with cysteine and an amino acid which is essential for the oxygenation of the lens while Goldman and Weinstein suggest that the cataracts of tetany are due to the formation in the blood of guanidine, histamine and tyramine during the spasms, and their subsequent migration to the aqueous where they penetrate the capsule and cause opacification of the cortical lens fibres. On this theory, galactose would act by decreasing the calcium in the alimentary canal and so depriving the intestinal tract of a good detoxicating substance.

With regard to the direct action, Kirby and co-workers have found that with tissue cultures of the lens, galactose is toxic to lens tissue in much lower concentrations than either dextrose or fructose.

F. A. W-N.


(12) Chini and Silvagni discuss two cases of Parinaud's syndrome which have come under their notice. Neither case was straightforward. Each was complicated by other symptoms which made their interpretation difficult. Both men had suffered from syphilis; in the one case this had been treated efficiently and seemed to have no connection with the present disorder; in the second there was positive evidence of active disease, and the authors consider it probable that the syndrome was due to syphilitic disease of the vessels of the mid-brain.

In the first case they conclude that there was a process of gliosis attacking the mid-brain.

HAROLD GRIMSDALE.


(13) Rohrschneider drawing on the published results as to the seasonal variation in the incidence of scrofulous eye disease in Palermo, Graz, Greifswald and Selsingfors shows that in the four centres the height of incidence corresponds with a solar position of 45 degrees above the horizon at midday—which is for the four places and ranges between February and May. The association of phlyctenular disease and solar radiation is held as proved. In view of the fact that the peak of incidence is reached before the
peak in ultra-violet radiation, Rohrschneider believes that irritation from sunlight is not the cause. He is inclined to blame the poverty in sunlight during the months preceding.

ARNOLD SORSBY.


(14) Vail discusses the nature of epithelial downgrowth, its clinical recognition and a rational plan of treatment.

Epithelial downgrowth is associated with slowly healing wounds which may remain open for a certain length of time and contain incarcerated iris, lens capsule or vitreous, circumstances which are well adapted to the growth and spread of epithelium. Epithelium proliferates more readily along smooth surfaces and hypotony favours this. An anterior chamber which is not completely re-formed and contains aqueous rich in proteins affords a good medium for epithelial cell growth.

In some cases the growth of epithelial cells is rapid, Meller describes a case in which extensive growth occurred in 4 days, or it may be slow and take 4-10 years.

Proliferation progresses as long as the wound is open and ceases when it is closed. Custodis noted that rapid proliferation of epithelial cells followed the attempted removal of an implantation cyst by paracentesis.

Histological studies show that the innermost cells are cylindrical or cubical and the outermost flat or elongated.

The cyst wall may be 5-6 layers of cells thick, many of the cells are in some cases ill formed. Swollen mucoid cells and degenerated cells, cells with a large amount of cytoplasm and a small nucleus, karyokinetic figures and epithelial cells smaller than corneal cells with darkly staining nuclei have been described. The epithelium may extend to the posterior surface of the iris and lens.

The author discusses the value of X-ray and radium therapy. He quotes 9 cases from the literature 7 of which were successfully treated by irradiation, the depth penetration of 150 per cent. H.E.D. (skin erythema dose) was determined by means of the absorption curve in water using a Wulf's single thread electrometer and a large ionization chamber. He comments that operative treatment does no good but causes a "flare up" with increased epithelial growth. The application of the actual cautery to the wound is reported in one case in the literature to have prevented recurrence of epithelial growth probably through irradiation of thermal energy.

H. B. STALLARD.

(15) Castresana says that congenital pigmentation of the sclerotic in a mild degree is often observed. It can be seen with the slit-lamp in the region of the ciliary vessels and as they enter the globe. Melanosis of the sclerotic has been carefully studied by many authors and it is thought to be of little danger to the patient as malignant changes very rarely occur.

There is the condition of the "blue sclerotic" due to thinning of the sclera and choroidal pigment showing through, accompanied by "fragilitas ossium" and also occasionally by deafness. Colden has recently observed a disseminated choroiditis in some of these cases. The condition is usually familial and is associated with an abnormal calcium metabolism.

A rare phenomenon is keratoconus, but the cornea is often thinned as well as the sclera, Bowman's membrane being much thinner than normal.

Excessive myopia has been noted by various authorities and occasionally a staphyloma. Other general bony changes have been seen such as malformation of the maxilla, modification of the bones of the skull and scoliosis. Dislocations may be due to lax ligaments, the teeth are usually carious and may be malformed. Other complications may be a low arterial tension, infantilism, synaectyly and haemophilia. The transmission of the disease may be by either parent, and either sex may be affected. Many causes of this disease have been put forward, for example syphilis, endocrine changes, etc. Eddowes considers the condition is due to a lack of fibrous tissue caused by a deficiency in the mesenchyme; abnormal development of the mesenchyme is also quoted by other authorities.

Ultra-violet light has been given for the general condition, calcium injections sometimes combined with vitamins, and also glandular treatment, and where necessary anti-specific treatment.

E. E. Cass.


(16) Gallino describes a case of a rare ocular condition first mentioned in 1928 by Salus. The case was that of a man, aged 64 years, who for 4 years had suffered from diabetes, and was being treated with insulin. In the right eye the iris was normal.
lens and vitreous were clear, but there was diabetic retinitis. In the left eye there were many posterior synechiae and the lens was opaque. The tension measured with a Schiotz tonometer was 40 mm. Hg; the iris was very vascular, and contained numerous branching capillaries, all originating from a capillary at 5 o'clock; these capillaries encircled the pupil, but did not pass its pigmented border; the pressure in these capillaries was 130 mm. Hg when measured by the ophthalmodynamometer of Bailliart.

Salus described three similar cases, all diabetic and all ending in glaucoma; in all these cases this “reddening of the iris” was previous to the glaucoma. A similar condition of telangiectasis has been found in the skin of some diabetics.

This condition in the eye is due to an alteration in the capillaries caused by diabetes. Arruga and Waldstein have also described cases.

The differential diagnosis is from an iritis or irido-cyclitis, but the new-formed vessels in an old inflammatory process are different and are accompanied by atrophic changes in the iris and destruction of the pigment cells.

E. E. Cass.


(17) Ask in reporting on a case of bronchial carcinoma with metastatic deposits in the choroid, gives an exhaustive survey of the literature. Drawing on 204 cases, he shows statistically that carcinoma of breast, bronchi, lungs and possibly prostate comparatively often give uveal metastases, whilst cancer of the stomach, uterus, ovaries and possibly of the skin rarely do so. On other forms of cancer no definite conclusions can as yet be reached. He holds that the explanation lies with the route of spread rather than with an assumption of a special affinity of the uveal tissue for some form of cancer.

Arnold Sorsby.


(18) Cavallacci discusses the variations in colour in the sclera due to conditions such as buphthalmos, myopia, etc., when the sclera is stretched; or due to syphilis or tuberculosis, where there is a thinning of the sclera.

The abnormal presence of pigment in the sclera may be acquired or congenital. The acquired form may be due to foreign bodies...
to treatment with silver, etc., to extravasated blood or to inflammation and neoplasms; it is also seen in alcaptonuria and in certain congenital vascular conditions.

Congenital pigmentation of the sclera is usually associated with hyper-pigmentation of the iris, the fundus and even of the conjunctiva and cornea, it was first described by Desmarres in 1847. In the literature there are a hundred unilateral cases and only three bilateral; the condition has been given a variety of names.

The author has studied three cases, one unilateral and two bilateral; a very complete general examination of all these cases was made, with little of note to be found.

In the first case a cousin of the patient's father had suffered from a similar condition, the other two cases were sisters and were the only two of the family with this condition.

All three cases showed excessive pigmentation of the sclera, iris and fundus; the deposition of the pigment in the sclera, iris, etc., and the histology of the condition, as given by various authors, is related in detail. Some have found the pigment to be scattered throughout all layers of the sclera in fusiform cells, others have noted extracellular and perivascular pigment; the iris in these cases is dark brown and usually uniform in colour; this is due to numerous pigment cells which are scattered throughout the stroma of the iris.

In the ciliary body and choroid chromatophores and pigment cells are present in excess.

It has been observed that a mydriatic dilates the affected iris more slowly than the normal one. The unaffected eye has an iris of a different colour.

The conjunctiva may also be affected, and usually the pigment is most marked near the limbus. When corneal pigmentation is present it is superficial, and in the region of the limbus.

The congenital origin of the pigment has been debated by Angstein, who says that it is not truly congenital but develops in the first year of life; but it has been found in a 6 months foetus and also at term.

Francois says that it develops with the normal pigment, i.e., at the 9th month, or often not at birth but within the first year; but this does not imply that it is not congenital.

As this condition may cause no symptoms, it may never be seen by a surgeon, it is often only noticed by the family in unilateral cases, and not in bilateral.

The course of the disease is usually stationary and benign, but it is sometimes difficult to know if this is so, as the case may never be seen until late, and the patient is not certain if it has increased during life or not, and the doctor may only have had it under observation for a short period.
Usher has observed 6 cases over a period of 15 years and there found practically no change; Collins watched one case for 12 years and it showed no appreciable change; Fleisher and Coats have noticed a certain progression in the scleral pigmentation.

In the author's unilateral case (watched for one year) no appreciable change was seen. It is not improbable that after puberty pigmentation may increase.

Brown-Doherty says that a melanotic eye predisposes to sarcoma in 29 per cent. of cases; others have noted a malignant change. The evidence in favour of malignant change is subject to error as the melanosis may not have been truly congenital.

Fuchs in 281 cases of melanosarcoma of the uvea thought that only 3 cases were due to change occurring in a melanosis.

One cannot, however, but see that there is a possibility that under some stimulation melanosis may undergo a degenerative change and become sarcomatous, or in some cases melanosis may have an element that predisposes to the growth of a neoplasm.

In the author's first case there was a partial ophthalmoplegia externa, and in the two children a convergent squint; the patients came for these conditions and not for the melanosis.

The general conditions of the patients show nothing of note; there is often some general pigmentation and a dark skin and hair, etc., this hyperpigmentation is generally physiological, comparable to an albino, where the pigment is lacking.

The condition is often familial; it may be carried on by chromosomes, or the constitution of the gene of a chromosome may be changed by accident. The author discusses at some length the possibilities in heredity and factors changing the chromosomes, dominant and recessive characteristics, etc.

Returning to the subject of pigment in the sclera, pigment contrary to the usual teaching, has been found in a small quantity in normal sclera; cells analogous to those found in the choroid have been seen in the sclera and in the optic nerve; they are specially localised along the course of the veins.

These cells are found in excess in melanosis and are most abundant in the places where pigment cells are usually found, i.e., round the anterior ciliary vessels, etc.

According to Panico the primitive mesenchyme has two layers: the superficial forms the fibrous tissue and the deeper, which is vascular and has pigment, becomes the uvea. In some cases the mesenchymatous element of the pigmented type is included in the sclera and gives rise to pigment cells. It is probable that an inclusion of a large number of mesenchymatous vascular elements in the sclera gives rise to melanosis.

Filippi Gabardi has suggested that melanosis occurs primarily...
in the uvea, and that there is a secondary migration into the sclera, and that this goes principally along the anterior ciliary vessels.

E. E. Cass.


(19) Kiewe and Maneff describe a male, son of first cousins, and his son, of dark complexion, both affected with melanosis of palpebral and ocular conjunctiva. The pigmentation of grey-brown colour was present as numerous small spots and confluent patches scattered diffusely over the palpebral conjunctiva especially at the fornice. On the eyeballs the pigmentation was rather more confluent, was widespread, but left a narrow zone free from pigmentation adjacent to the limbus. The slit-lamp and microscope revealed the pigment as being deposited immediately beneath the conjunctival epithelium and also upon the sclera. The irides were of very dark brown colour. The fundi of the father were not clearly visible owing to lens opacities, but in the son they were of especially dark colour but otherwise normal. The skin of the face and body in both presented innumerable pigment spots. In the direct progenitors for three generations no cases of melanosis were known.

Among reported cases of this condition only two are quoted as shewing a hereditary element, one affecting two generations (Selter) and one three generations (Bourquin).

Humphrey Neame.


Petraganni (Siena).—The aetiology of recurrent vitreous haemorrhage. (Contributo all'etiopatogenesi delle emorragie recidivanti del vitreo). Boll. d'Ocul., March, 1936.

(20) These two papers published in the same number of the same journal, come to very different conclusions. Giannoni and Focosi, the authors of the first, reject the suggestion of certain surgeons that the disease is due to some general infection, e.g., syphilis or tuberculosis, and are of opinion that the real cause is to be sought in a diathesis similar to that which brings about
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recurring nose-bleeding. They hold that they are able to demonstrate in the series of cases which they record, the presence of special fragility of the smaller veins, a condition which has been called "intermittent venular angiopsathyrosis."

Petragnani on the other hand, as a result of the examination of three cases, concludes that the chief—though not the only—cause of this condition is tuberculosis. He has not found any clinical appearances which would suggest the presence of Buerger's disease (endoanginitis obliterans).

HAROLD GRIMSDALE.

(21) Fink, Walter H. and Bryngelson (Minneapolis).—Relation of strabismus to right or left sidedness. Arch. of Ophthal., December, 1935.

(21) Fink and Bryngelson present this paper as a preliminary report, their object being to show that squint is not only a peripheral manifestation but is an indication of poor co-ordination of the organism as a whole. They investigated a series of 60 cases of convergent strabismus. 74 per cent. of these came from a left-handed stock, and in practically 60 per cent. control had been shifted from the dominant to the less dominant side. 64 per cent. had a family history of twin births, 39 per cent. had speech defects including stuttering, 18 per cent. had a history of stuttering, and 62 per cent. a family history of strabismus. The most significant fact is the high percentage of cases in which handedness was shifted from one side to the other, the shift being made early in life, usually before the onset of the strabismus. The effect of this is to upset cerebral dominance and so produce inco-ordination of function which may be generalised or be localised in the ocular association area.

F. A. W-N.


(22) Sugita made preparations of Bowman's and Descemet's membranes and also of the substantia propria from the corneas of ox eyes to test their permeability to crystalloids and colloids. He found that colloids were able to pass through the corneal stroma, but Bowman's and Descemet's membranes were impermeable to them, they were all, permeable to crystalloids.

He would therefore assume that Bowman's and Descemet's...
layers are perfect dialysing membranes, preventing colloidal substances that have penetrated into the corneal stroma from passing into the epithelial and endothelial cells and interfering with their nutrition.

In this connection he discusses the Kayser-Fleischer ring of pigment at the edge of the cornea, the cause of which has not yet been determined. He puts forward the view that in this condition, as in arcus senilis with its analogous deposit of fat, there may be a deposit of colloid material at the corneal margin, and it is prevented from penetrating towards the centre of the cornea because of its denser structure and from passing forwards or backwards by reason of the function of Bowman’s and Descemet’s membranes above mentioned; infiltration of Descemet’s membrane with the colloid may, however, in time arise when this function of the membrane becomes impaired and it becomes permeable.

THOMAS SNOWBALL.


(23) Doryl is a derivative of cholin; used in instillation it is able to produce in normal human eyes contraction of the pupil and diminution of the intra-ocular pressure. The effects on the pupil are greatest about an hour after the drop, on the pressure the result is delayed and greatest after six hours. In twelve hours the eye has returned to the first state.

In glaucoma the action of the drug is favourable. It is followed by a considerable fall in pressure, amounting in some cases to 20 mm. of mercury, about an hour after instillation. Fontana has used doryl also in cases of perforating wounds with prolapse of the iris; he finds that its contracting power is able to reduce the prolapse.

HAROLD GRIMSDALE.


(24) Fiore has shown in previous papers that urea increases the permeability of this barrier to certain colouring matters and to arsenobenzol. In the present series he investigates the action of certain bodies, methyl and di-methyl urea and some barbiturates containing the urea group.
He finds that methyl and di-methyl urea have no action on the penetration of the colouring matters; but they increase largely the amount of arsenobenzol passing into the anterior chamber. The barbiturates were inactive in both respects. The author suggests that the presence of two uncombined groups NH₂ is necessary in the molecule to ensure the passage of the colouring matter. This he hopes to confirm by further experiment.

HAROLD GRIMSDALE


(25) From studies of sections of the canals and the surrounding muscles, Cattaneo draws the following conclusions.

The horizontal part of the canaliculus is surrounded by muscle fibres derived from Horner's muscle which are arranged partly parallel to the long axis of the canal, partly obliquely as regards this. The vertical portion of the canaliculus is surrounded by fibres chiefly at right angles to its course. The sections show that throughout the length of the canal the tunica propria has a subepithelial elastic layer, from which elastic fibres run to interlace with the muscle fibres; thus they form a close connection between the canal wall and the muscle.

HAROLD GRIMSDALE


(26) The results of Biozzi's observations may be summarised thus; this form of heterochromia is always the expression of a chronic irido-cyclitis of very slow development; there is no evidence that it is due to some disturbance of the sympathetic nerves; in the majority of cases the primary cause is tuberculosis; in ten of the nineteen cases there was definite evidence of tuberculosis, and it was suspected in four others.

HAROLD GRIMSDALE