

## ABSTRACTS

## I.—MISCELLANEOUS

- (1) **Guyton, Jack S. and Woods, Alan C. (Baltimore).—Etiology of uveitis. A clinical study of 562 cases. *Arch. of Ophthalm.*, December, 1941.**

(1) This admirable paper by **Guyton and Woods** concerns the causes of uveal disease in 562 patients admitted to the wards of the Wilmer Ophthalmological Institute between 1925 and 1929. In a large proportion of these the disease was either recurrent or chronic. An attempt to differentiate between acute and chronic forms was not satisfactory, because in the same patient an attack of uveitis would run an acute course on one occasion, and a chronic course on another. As would be expected, the patients were examined with great thoroughness, but routine tests for brucellosis and sarcoid were not done until after the period covered by the report. The final diagnosis was reached after evaluation of all available evidence including subsequent course of the uveitis and any possible histological observations. The patients were divided into those in whom a definite diagnosis was justified, Group 1, and those in whom the diagnosis was tentative, Group 2. The following table indicates the results of the examinations.

Aetiologic Factor	Group 1: 244 Patients with definite evidence of Aetiologic Factor		Group 2: 318 Patients with presumptive evidence of Aetiologic Factor		Total: 562 Patients	
	No. of Patients	Per- centage	No. of Patients	Per- centage	No. of Patients	Per- centage
Tuberculosis ...	132	23·5	147	26·1	279	49·7
Syphilis ...	45	8·0	14	2·5	59	10·5
Sarcoid ...	3	0·5	0	0·0	3	0·5
Brucellosis ...	1	0·2	1	0·2	2	0·4
Foci of Infection...	31	5·5	116	20·6	147	26·1
Gonorrhoea ...	10	1·8	16	2·8	26	4·6
Non-granulomatous Systemic Disease	14	2·5	19	3·4	33	5·9
Metabolic Disease	0	0·0	3	0·5	3	0·5
Miscellaneous ...	8	1·4	2	0·4	10	1·8
Total ...	244	43·4	318	56·5	562	100·0

The higher incidence of focal infection in Group 2 is due to the uncertainty with which the disease could be attributed to this cause. From clinical and histological viewpoints, uveitis may be classified

into two varieties: (1) Granulomatous; characterised by chronicity, only slight exudative reaction and often by formation of visible nodules. (2) Nongranulomatous; characterised by a more acute reaction, exudation of serous or plastic type and absence of nodules.

Diagnosis of the aetiological factor in uveitis demands a searching examination of the patient. Unfortunately, the direct method of making cultures and animal inoculations of aqueous or excised iris tissue prove uniformly fruitless, and other measures have to be employed. In tuberculosis the criteria included:

- (1) Histological changes in the excised eye—17.
- (2) The occurrence of a focal reaction in the eye after tuberculin when a presumptive diagnosis had already been justified on other grounds.
- (3) The presence of nodular lesions, without evidence of syphilis, sarcoid or brucellosis.
- (4) The development of retinal perivascularitis, deep scleritis, sclero-keratitis, or interstitial keratitis when syphilis could be excluded.
- (5) A pronounced tendency to chronicity and recurrence, with mutton fat K.P., in a tuberculous patient, or in one hypersensitive to O.T. injected intracutaneously. Koeppe nodules are of great importance, because it is only occasionally that they occur in non-tuberculous uveitis, while the same is true of "mutton fat K.P."

Cutaneous reactions to tuberculin are not of great value in the absence of other signs, though they may afford useful corroborative evidence. Thus 43 per cent. of the tuberculous uveitis patients showed extremely high skin sensitivity while only 11 per cent. of the non-tuberculous group showed it. On the other hand only 6 per cent. of the tuberculous patients were insensitive as far as the test was carried, while 23 per cent. of the non-tuberculous were insensitive. The same sort of findings apply to radiograms of the chest, the percentage of positives not being higher than 60 even in the group of cases with undoubted tuberculous uveitis. The effect of tuberculin therapy was slow, but in the main favourable, and in patients who were treated for over a year, 71 per cent. were healed and 21 per cent. improved. The criteria for a definite diagnosis of syphilis were (1) a lesion with nodules or gummata, in a patient with systemic evidence of active disease. (2) A non-characteristic lesion, in early syphilis reacting favourably to anti-syphilitic treatment, or in late syphilis where there is no other demonstrable factor. The most interesting feature of the syphilitic group was the apparent rarity of choroiditis, only 3 patients developing it in a degree sufficiently severe to warrant their admission to a ward, though the numbers would be higher were out-patients included.

The most important observation in this paper is probably the one concerning the rôle of focal infections, which were found to account for only 5.5 per cent. of the total cases. The criteria adopted were:—

(1) That the uveitis should have followed the onset or an exacerbation of activity in the focus.

(2) That a local reaction + or — should occur after eradication of the focus, or

(3) That in the absence of other factors, there should be a demonstrable focus and the uveitis be of the acute serous type.

As comment on the haphazard way in which focal sepsis is held to be responsible for uveitis, it is stated that the incidence of dental sepsis and sinus infection were almost identical in two groups of about 500 patients, one of which suffered from cataract, ocular trauma, etc., and the other from uveitis. The authors devote several pages to this problem and advise strongly against the indiscriminate eradication of infections of the teeth, tonsils, sinuses and genito-urinary tract. In the diagnosis of gonococcal uveitis, the criteria are the course and clinical appearance of the ocular lesion, and its co-existence with an active gonococcal infection or arthritis. The complement fixation test may occasionally give a false positive reaction and is therefore more important from the negative aspect. The clinical picture alone can never be relied upon. Thus a number of patients showed the "characteristic" acute fibrinous iritis with history and laboratory findings entirely negative for gonorrhoea, and another group with proved gonococcal iritis showed a mild form of inflammation or a plastic type of acute uveitis which sometimes became chronic. Since sulphanilamide therapy fails to prevent late relapses, the authors suggest that these may be due to changes in the local immunity and sensitivity which predispose the eye to react to other transient bacteremias. In commenting on non-granulomatous uveitis attributed to systemic infections the authors note that an association of iritis with arthritis was found in only 1.4 per cent. of the whole series. Only 3 patients were regarded as having uveitis due to metabolic disease, the diseases being gout, diabetes and parathyroid tetany. In these, the ocular and general pictures were in no way remarkable. As a final note from this valuable paper one may perhaps quote the observation "that in this group of patients (suffering from uveitis) foci of infection were no more common than in a control group, and that removal of infected foci did not preclude the incidence of recurrences."

F.A.W.-N.

(2) Arrigoni, Louis, M.S., Fischer, Louis, Ph.D. (Seattle), and Tozer, G. A., B.S. (Everett, Wash.).—Ophthalmic zinc sulfate solutions. *Arch. of Ophthalm.*, November, 1941.

(2) Arrigoni, Fischer, and Tozer, have done a useful and interesting piece of work, the results of which may perhaps become apparent in future editions of hospital pharmacopoeias.

The best agent for maintaining the sterility of eye lotions and

drops is a mixture of methyl and propyl-p-hydroxybenzoates in a proportion of 65 to 35, and it is effective in strengths as low as 0·04 per cent. The use of an eye lotion which is isotonic with the tears is obviously of advantage in doing away with pain and excessive lacrimation, while the same is true of securing the proper pH. Somewhat elaborate calculations are needed to secure the correct formulae, and details of these are given in the original article. One of the formulae, that for  $\frac{1}{4}$  per cent. zinc sulphate lotion may be quoted here.

		approx. Imperial equivalents
Sodium Acetate Anhydrous ...	1·0000 Gm.	j, gr. V
Zinc Sulphate Anhydrous ...	0·2500 Gm.	gr. j.
Potassium Chloride ...	1·1162 Gm.	gr. V q.s.
Aq. ad ...	100·00 Gm.	℥ j.

F. A. W-N.

- (3) **Sorsby, Arnold, Hoffa, Elizabeth L. and Smellie, Elspeth, W. (London).**—Sulphapyridine in ophthalmia neonatorum. *Brit. Med. J.*, March 7, 1942.

(3) **Sorsby, Hoffa and Smellie** record their results in 273 cases of ophthalmia neonatorum treated with sulphapyridine and a control group of 46 treated by the classical methods of local therapy. The work was done at White Oak Hospital, to which St. Margaret's Hospital had been transferred as a war time measure. From September 1, 1939, to December 31, 1941, 322 cases of ophthalmia neonatorum were admitted. At first routine local treatment was practised but by the end of 1939 treatment with sulphapyridine was instituted. At first it was used tentatively and later as a routine. As stated 273 cases were treated with the drug by oral administration. Among the cases it is of interest to note that 89 were positive to the gonococcus and 233 negative. Sulphapyridine was used irrespective of the causal organism. The results were strikingly good: 61·9 per cent. of cases were cured clinically within 8 days against 15·2 per cent. by local methods, and 5·9 per cent. of cases required prolonged treatment of more than a month against 26·1 per cent. Rapid recoveries were obtained in non-gonococcal cases, e.g., 63 per cent. recoveries within 8 days; and in gonococcal cases 43 out of 73, a percentage of 58·9. These results certainly justify the claim for this method of treatment to be a revolutionary advance.

R. R. J.

- (4) **Livingston, P. C.**—The Montgomery Lecture. *Irish J. of Med. Sci.*, May, 1942.

(4) There is a tendency, fostered by uninformed newspaper comment, to regard the Services as hide-bound and too much

regulated by routine. To such as hold this view, we would recommend the perusal of Air Commodore Livingston's Montgomery Lecture. It is a useful and original contribution to the Ophthalmology of Flying, the work in it having been inspired by contact with particular patients, the striking features in whose cases were of sufficient interest to snap the chain of routine technique. In tests for dark adaptation it is not sufficient merely to test the airman's power of appreciating a stimulus such as a flash of light, his form sense should also be investigated, and when this is done, for light values near the visual threshold, apparently erratic results are obtained until the importance of the psychological development of the individual is appreciated. Two main types then emerge, the "relative form appreciators" who go on guessing the nature of the object until a correct answer is made, and the "absolute form appreciators" who wait until the clues are sufficiently definite to enable a true description to be given. It is possible with the author's hexagon test to differentiate these types and also to test them under the varying degrees of illumination met with in night flying (from 0.000002 to 0.006 equivalent foot candles). The maximum score obtainable is 32, and the average obtained is 20. About 1.5 per cent. of candidates do not score at all, while a completely accurate record is made by 3.5 per cent. It has been found up to date that there are some ten different factors adversely influencing "night visual capacity," two of which are of special interest, psychological abnormalities and anoxia. The depressive type contrary to expectation often records a high score, whereas those with an anxiety state return a poor score. The effects of anoxia are clearly demonstrable at the pressure chamber equivalent of a height of 15,000 ft. Scores of 23 at ground level are reduced to 6, and there is a marked enlargement of the blind spot with associated field irregularities, going on to relative insensitiveness of the whole rod area at higher altitudes. In the second part of the lecture, the author considers the effect of nocturnal factors on the approach and landing of aircraft. In order to appreciate these, it is necessary first to examine the factors operating in daylight landing. An unaided visual acuity of 6/12 improved by glasses to 6/6 is found to be sufficiently good. Defects of ocular muscle balance are of less importance if these are inherent than if they are acquired, because in the former state the pilot has learnt how to make allowance for them. In landing an aircraft three factors are used, namely stereoscopic vision, depth perception, and parallax, and it has been shown that the first of these may be quite good and yet depth perception be inaccurate. Stereoscopic vision can be improved by training since it embodies principles more psychological than physiological, while the reverse is true of depth perception, since it is due to the appreciation of the effect of stimulation of

disparate retinal points. Parallax exercises its functions to a greater extent in areas beyond the cone of effective binocular vision and asserts its greatest influence in appreciation of relative vertical movement. In landing an aircraft by night, greater reliance has to be placed on instruments, the principal visual aid being parallax, which is employed by the pilot in estimating the relative movements of the lights on the flare path. The three stages are (1) a general enlargement as the whole flare path system is approached. (2) A horizontal contraction during which the lights appear to merge almost into one, and (3) a sudden and rapid lengthening of the path when each light becomes a separate entity.

Stereoscopic appreciation and depth perception are also important, however, since it has been found clinically that if either or both of these is seriously defective, failure is certain. A further factor is also needed, namely a sufficient degree of night vision to allow the pilot to be subconsciously aware of natural obstacles which are a great help in accurate judgment.

F. A. W-N.

(5) **Horner, Warren D. (San Francisco).—Dinitrophenol and its relation to formation of cataract.** *Arch. of Ophthalm.*, June, 1942.

(5) No satisfactory explanation is yet forthcoming of the formation of dinitrophenol cataract, but Horner gives an interesting account of the condition in this article. It is rather surprising that although dinitronaphthol and dinitrophenol were shown to be accelerators of metabolism in dogs as long ago as 1885, it was not until 1933 that an account of the clinical use of the latter in obesity was published. Its toxicity was demonstrated in France in 1918 where it had been used in the manufacture of explosives, and a remarkable reduction in fatalities occurred when suitable protective measures were enforced. Experimental work proved that dinitrophenol was able to increase the consumption of oxygen in animals to as much as 12 times the normal amount. The increase in metabolism was due to direct stimulation of the cells, and was therefore unaffected by destruction or curarisation of the brain or cord or by removal of the thyroid or suprarenals. It was primarily at the expense of fats and carbohydrates. In man, it was found by Cutting, Mehrtens and Tainter that the metabolic rate could be maintained at 40 per cent. above normal by the daily ingestion of 3-5 mg., but they issued warnings against possible toxic manifestations and advised that the drug should be used only under close medical supervision. In spite of this, it was sold in large quantities, over 1 million capsules being dispensed from a single clinic in San Francisco.

In these circumstances, it is not surprising that toxic manifestations began to be noted. Cutaneous lesions appeared in 8-23 per

cent. of cases, and agranulocytosis, neuritis and hepatic damage were also reported. There were also 9 deaths, 3 from overdoses with resultant hyperpyrexia. It was therefore concluded that "to treat such a mild chronic condition as obesity with a toxic agent capable of inducing serious injury and death was unjustified." Cataract as a complication of dinitrophenol therapy was first described in July, 1935, and by October, 20 cases had appeared in the literature, a further 20 being recorded in the next year. The earliest lenticular changes consisted of faint grey striated or powdery opacities beneath the anterior capsule, while in the posterior subcapsular region there was a dense saucer shaped granular deposit with a golden or silvery lustre. The refraction showed a characteristic change towards hypermetropia. After an interval of weeks, vision rapidly became worse, the whole lens becoming opaque, and intumescent, sometimes with secondary glaucoma. The interval between the onset of blurred vision and complete opacification varied from 7 days to 5 months. Occasionally the process became arrested with retention of useful vision. The interval between the termination of administration of the drug and the development of cataract varied from a month to a year with an average of seven months. The incidence was in the region of 1 per cent. The cases as a whole responded well to operative treatment. The aetiology of the condition is not yet understood, but it is possible that the increase in metabolic rate causes an increase in the lactic acid content of the blood which would be transmitted to the aqueous and so cause damage to the lens epithelium.

F. A. W-N.

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## II.—GLAUCOMA

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- (1) **Barkan, O. (San Francisco).—Choice of operation in glaucoma.** *Amer. Jl. Ophthal.*, Vol. XXIV, p. 768, 1941.

(1) **Barkan** suggests that the selection of an operation for primary glaucoma should be based on the anatomical and pathological findings under examination by the gonioscope and binocular microscope. On these he classifies glaucoma as (1) trabecular and (2) narrow angle (iris block) glaucoma. In the former the filtration angle is wide open and the anterior chamber is not shallow. He advises goniotomy (division of some of the trabeculae) in the early stages of obstruction in this type of glaucoma and cyclodialysis or external fistulization for the late stage. In the early stage of the latter the author recommends a keratome section into the filtration angle and single or multiple peripheral iridectomy. When the anterior chamber is very shallow the sclera is incised from the outside with a knife, so-called iridectomy ab externo. In the late stage

he practises cyclodialysis and iridectomy. The paper contains a table which sets out the anatomical, pathological and clinical characteristics of "trabecular" and "narrow angle" glaucoma with a note about the operation recommended in the early and late stages of each type.

H. B. STALLARD.

- (2) **Troncoso, M. U. (New York).**—Value of gonioscopy in the prognosis and treatment of glaucoma. *Amer. Jl. Ophthalm.*, Vol. XXIV, p. 1396, 1941.

(2) **Troncoso** describes his new model of the gonioscope which has no prisms thus making the examination of the filtration angle direct. He emphasizes the importance of observing in the living eye the site and extent of anterior peripheral synechiae in glaucoma. By this means an appropriate time and site for operation may be chosen and indeed the nature of the operation which it is thought best suited by the case may be decided upon.

The author states that iridectomy, cyclodialysis, trephining, iridencleisis and other operations have more chance of success when performed at places where the angle is open. He quotes his statistics of 87 eyes with congestive glaucoma, subdivided into 5 groups. The percentage of each group in which the filtration angle was open, partially closed and entirely closed is set down. Gonioscopy is also of value in prognosis and in revealing the mechanical success of an operation.

H. B. STALLARD.

- (3) **Clarke, S. T. (Boston).**—Gonioscopic observations in cyclodialysis operation. *Amer. Jl. Ophthalm.*, Vol. XXIV, p. 1026, 1941.

(3) **Clarke** has made a study of 34 patients who underwent a cyclodialysis operation for glaucoma. A white, quiet eye with tension of 22 mm. Hg or less, over a three-month period was used as a criterion of success. Usually the tension varied from 12-16 mm. Hg and there was no case of hypotony.

He stresses the importance of operating at a site where the filtration angle is open, preferably in the upper part of the eye. Guidance in this respect is afforded by the gonioscope. The patient is nursed at an angle of 30° so that by gravity the choroid may descend a little, thus assisting the opening into the supra-choroidal space and also blood, if present, may sink to the bottom of the anterior chamber. The presence of blood in the opening at the filtration angle may lead to failure from organization and ultimate occlusion. The author recommends the use of miotics after operation but the advent of iritis makes the use of atropine imperative.

He states that failures are due to operating through the site of an anterior synechiæ and at or near the place of a previous operation. Damage to Descemet's membrane may also lead to occlusion



of the opening and so failure. The author advises that cyclodialysis be given a chance early in glaucoma when the operative results would be so much better than in those cases in which it is tried as a last resort.

H. B. STALLARD.

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### III.—MUSCLES

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- (1) **Hitz, T. B. (Milwaukee, Wisconsin).—The management of strabismus at the Milwaukee Children's Hospital.** *Amer. Jl. Ophthal.*, Vol. XXIV, p. 1019, 1941.

(1) **Hitz** describes the routine investigations of a case of strabismus. He studied 143 patients and 57 per cent. showed abnormal retinal correspondence. 34 patients with abnormal retinal correspondence were given prolonged treatment and 58 per cent. of these gained normal retinal correspondence. 24 were treated with glasses, occlusion pre- and post-operative exercises and of these 33 per cent. showed binocular vision and 41 per cent. partial binocular vision, a total of 74 per cent. Of 19 treated by glasses and occlusion but no orthoptic exercises, 26 per cent. gained binocular vision and 21 per cent. partial binocular vision, a total of 47 per cent.

The author states that a more complete surgical correction of the deviation may be expected in cases of normal retinal correspondence.

H. B. STALLARD.

- (2) **Berens, C., Elliot, A. T., and Sobacke, L. (New York).—Orthoptic training and the surgical correction of strabismus.** *Amer. Jl. Ophthal.*, Vol. XXIV, p. 1418, 1941.

(2) **Berens, Elliot and Sobacke** have made a study of 324 cases of strabismus which required surgical treatment. For statistical purposes they sub-divide these in 3 groups (1) 144 patients who received no orthoptic training before operation; (2) 83 who had post-operative orthoptic training and (3) 97 who received both pre- and post-operative orthoptic training. It is evident from the statistics that although orthoptic training before operation does not change the angle of squint to any marked degree it is of appreciable value when combined with post-operative training in raising the percentage of cosmetically successful results, establishing normal retinal correspondence and the three grades of binocular vision. The results are considerably poorer in these respects when orthoptic treatment has been given only after operation or neither before nor after operation. The statistics which accompany this paper afford an interesting study.

H. B. STALLARD.