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The Antiseptic

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For the use of Registered Medical Practitioners, Hospitals and Laboratories only

Founded by the late Dr. U. RAMA RAU in 1904

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THE ANTISEPTIC

Vol. 57, No. 1, January, 1960

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NOTICE

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THE ANTISEPTIC

Vol. 57, No. 1, January, '60

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REMINDER TO ADVERTISERS

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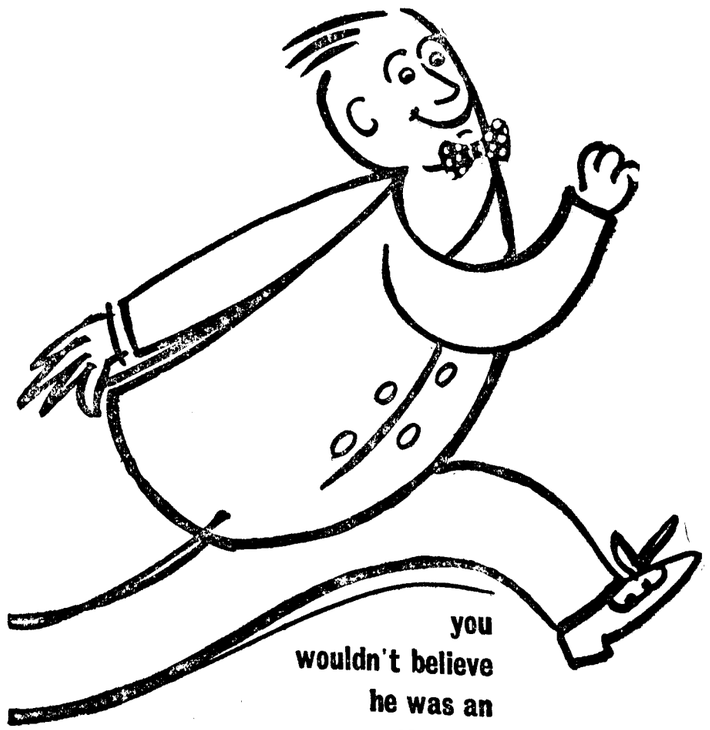

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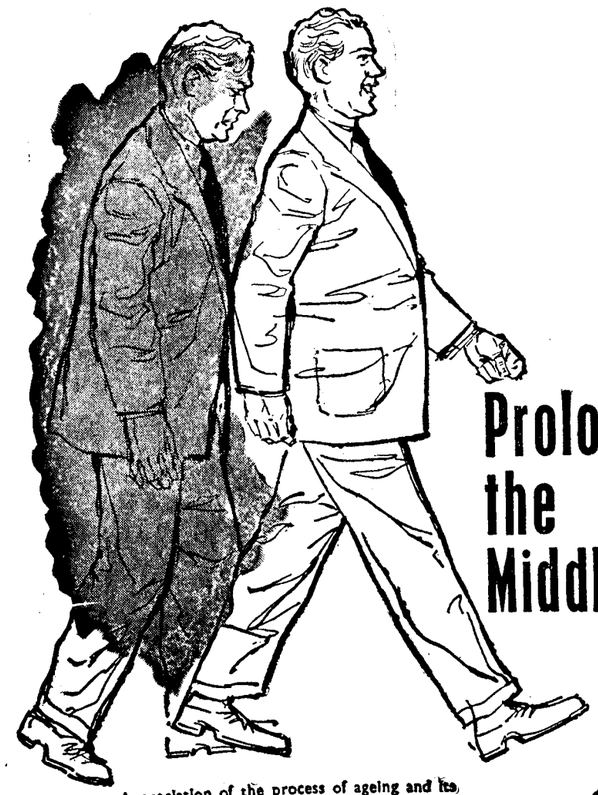

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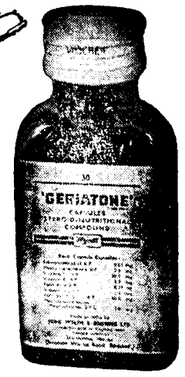

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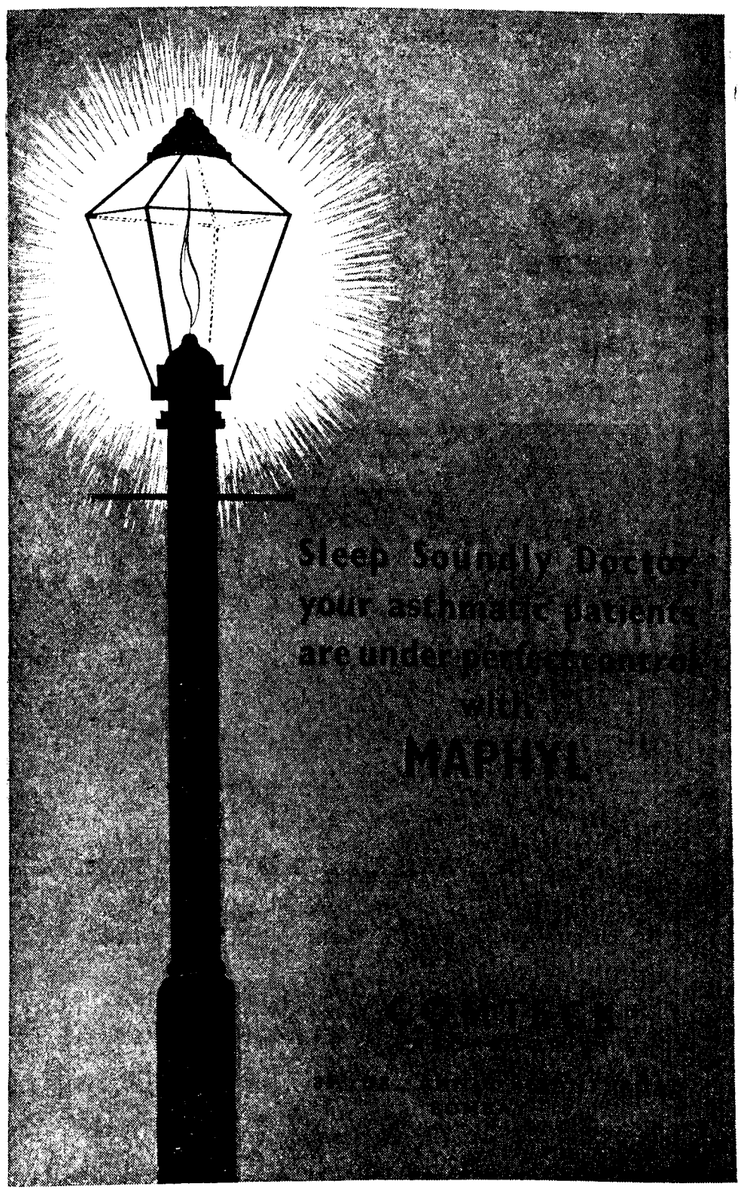

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Napoleon could have won the battle of Waterloo but he hesitated until noon before opening the attack, and lost. Indecision in Napoleon's case was evidently a symptom of advanced age. It cost him throne and liberty.

The medical problem to control premature old age has become still more acute in modern times. Patients who suffer from the strain of life, the "manager disease" are almost daily visitors in a doctor's practice.

In this connection it seems worthwhile to take notice of A. Aslan's results obtained with parenterally applied procaine for controlling symptoms of ageing, published at the 4th International Gerontological Congress, 1957. Arteriosclerosis, vascular spasm, arthropathies, bronchitis & emphysema, gastric and duodenal ulcers, etc., were treated in 5,251 patients of all ages. A. Aslan's team observed a rehabilitation rate (return to fitness for work) of 48 to 87%. There was an improvement in the mental and physical well being of the patients, accompanied by eutrophic changes, particularly regrowth and repigmentation of hair, with a restoration of the normal turgor of the skin. The tone of the vascular system and basal ganglia was also improved. In concluding the authors write, "It is quite astonishing with what physical agility these patients move about and the degree of mental vivacity they show".

Similar results were reported by M.Odens (Lancet, April 4, 1959, p. 737) in 10 patients 60 to 75 years old. The author writes, "I have found that the pre-senile cases especially have responded very well; tiredness, depression and tremor of the hands disappeared after 30 injections, and memory, which was very much impaired in 4 cases, has improved considerably."

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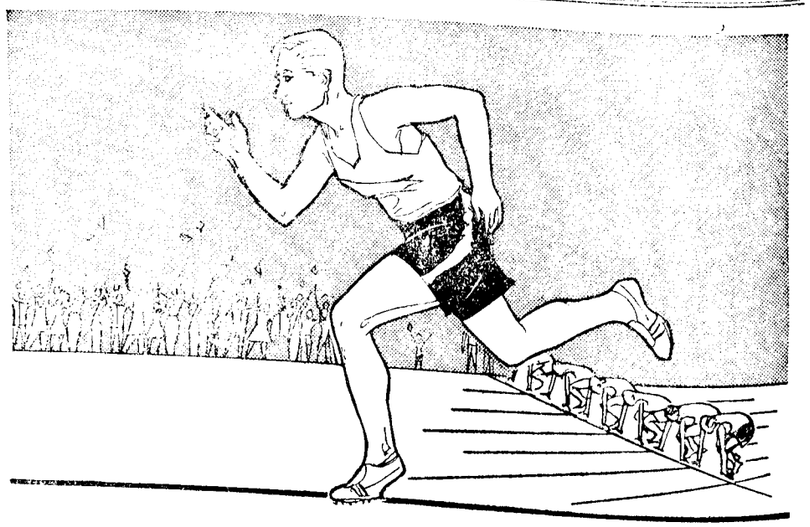

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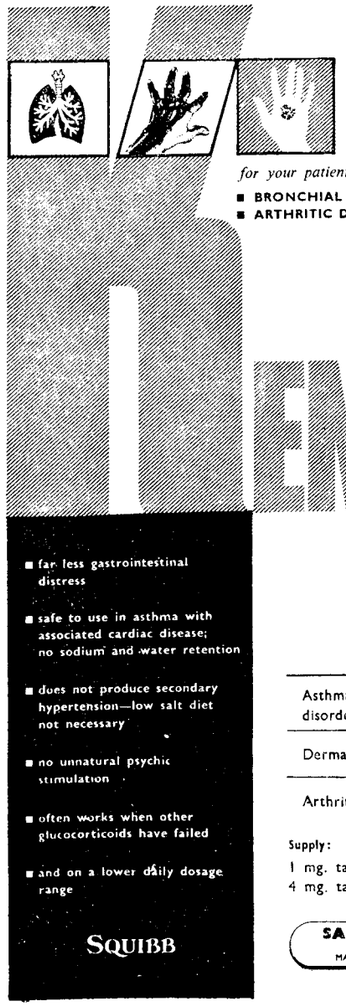

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Original Articles

THE PROBLEM OF MYOPIA*

Lt. Col. S. ANNASWAMI, M.B., B.S., D.O.M.S. (Lond.), F.R.C.S. (Edin.),
Thyagarayanagar, Madras-17

INTRODUCTION :—The object of this paper is mainly threefold :—*Firstly*, to point out the conflicting views about the ætiology of errors of refraction in general and about high myopia in particular, with the consequent difficulty in framing rules for management ; *secondly*, to stress the necessity for educating the public about the role of visual exercises in the treatment of myopia and exposing the unscientific nature of the tall claims made in this regard and *thirdly*, to stress the importance of eugenic prophylaxis in the eradication of high myopia.

Nature of vision.—Vision involves two mechanisms :—(*i*) a lower physico-physiological one responsible for the formation of correct retinal images and their transference to the cortex and (*ii*) a higher psychologico-perceptual mechanism responsible for the correct interpretation of the sensations so transferred.

Emmetropia.—In emmetropia, both the mechanisms function normally. With the eye at rest, incident parallel rays after refraction by the optical elements of the eye converge upon the retina to form as sharp an image as possible within the limitations due to certain physical aberrations in the optical system of the eye and the image is interpreted correctly by the perceptual mechanism. This is the most common condition clinically but not necessarily biologically.

* Presented in a shortened form at the VIIth Madras State Ophthalmic Conference held at Madras on 17th and 18th October 1959.
Specially contributed to the ANTISEPTIC.

Determination of the state of refraction.—The optical elements are independent variables, the variability being hereditarily determined. The elements are:—the curvatures of the refracting surfaces of the cornea and lens, the depth of the anterior chamber, the thickness of the lens, the refractive indices of the refracting elements and the axial length of the eyeball. The elements being independently variable, the state of refraction of the eye depends upon their chance combination. The axial length of a highly myopic eye may be within normal limits and a hypermetropic eye may be abnormally long. But to explain the preponderance of emmetropia we have to postulate a regulating process which balances the elements against one another. For instance, there appears to be a negative correlation between the total refraction and axial length but the correlation is not unity.

The eye of the newborn is about 16 mm. long and is therefore, hypermetropic. By about the age of eight, it has grown to its normal length of 24 mm. This lengthening is equivalent to a marked myopic state, and is counterbalanced by the opposing changes in the refractive components, chiefly in the lens. This tends to become hypermetropic due to two important changes:—(*i*) a diminution in the curvature of its surfaces and (*ii*) a diminution in the total refractive index due to a relative increase in the index of the cortex.

The two optical factors of the eye, refractive power and axial length are changing as long as their anatomical substrata are growing, chiefly the lens in the former and the length of the globe in the latter. The decrease in the refractive power due to the lens-changes seems to come to a standstill by the 5th or 6th year of life. The axis in the majority of cases also ceases to grow by about the same time but in a number of cases it continues, even till the 24th year of life. When both factors come to a standstill, refraction is stabilized. So the final refraction depends upon (*a*) a correlation of the inherited optical elements, (*b*) the process of stabilization, also inherited, but independent of (*a*) and (*c*) the correlation of (*a*) and (*b*).

If this stabilization takes place very early, the eye is generally hypermetropic, if at the end of the first decade it is generally emmetropic and if in the teens it is generally myopic. Kettersey (1949) places the entire responsibility on heredity and does mot consider that near work has any share in the production or aggravation of refractive errors. The eye has tissues of ectodermal origin, especially the retina, with rapid growth and quick development, and those of mesodermal origin, especially the sclera with a very prolonged period of growth. The secret of correlation according to him lies in the reciprocal influence exerted by these two tissues on each other.

But T. Sato (1957) analysing a survey among school and college students in Japan is of the opinion that myopia which appears to be rapidly increasing among the college students of Japan is an acquired rather than a hereditary condition, that the common cause of the condition is a change in the refractive power of the lens, a change which is due to excessive activity of the ciliary muscle caused by close work.

Sato presented his views at the International Ophthalmic Congress, 1954. During the discussion, Lindner pointed out that in Germany, myopia among printers is not more frequent than in bricklayers, and that among the illiterate peasants in Egypt there is a very high incidence of myopia. Constitutional remedies were stressed.

The subject of my paper is the problem of myopia. Why is it a problem? It is a problem because of the existence of such markedly opposed views about its ætiology and of the consequent contradictory recommendations about the restriction or the complete avoidance of close-work or placing no restriction on it.

Simple myopia.—ITS NATURE AND MANAGEMENT:—Simple myopia does not raise any special problems as regards prognosis or treatment, but in the present state of our knowledge, before we decide that it is really simple and not degenerative, the eye should be examined frequently to assess the progress. Actually a small degree of simple myopia may even be an advantage, because the individual will be in the happy position of not requiring glasses in later life for close work.

The simple myopic eye is also hereditarily determined, is stabilized at a normal period and has good vision with the correction of the error. It remains healthy. There is difference of opinion on matters of detail; for instance, whether full correction should be ordered for constant use irrespective of the amount of error or irrespective of the age of the patient. Most ophthalmologists prescribe full correction for constant use in the younger patients with the object of exercising the accommodation. In the higher errors, full correction is often not tolerated especially by the older patients. Glasses which give the most comfortable vision should be ordered. There is no harm in prescribing bifocals even to the non-presbyopic patients. Actually according to Miles (1957) a bifocal addition of + 0·75 to + 1·0 Ds for near vision, may help in arresting the increase of progressive myopia. No other treatment is necessary for simple myopia, nor can the optical elements be altered by treatment. Of course overstrain should be avoided and general health, if below par, should be attended to. Bad visual habits should be corrected *e.g.*, reading bad print in poor light with the book held too close to the eyes.

Retinoscopy:—In estimating the error of refraction by retinoscopy in the younger age-groups, it is usual to paralyze the

accommodation effectively by the use of a powerful cycloplegic such as atropine for a number of days. This is a dislocaing procedure in school children. V. Dolzalova (1957) did skiascopy of 100 squinting children once after instilling homatropine 3 times within an hour and for a second time after atropine twice a day for a week. The results were approximately identical. I have found that three applications of 2½% homatropine at intervals of ten minutes produce satisfactory cycloplegia in about an hour even in young children.

Degenerative myopia.—While the simple myopic eye is not a diseased eye, the degenerative myopic eye has a strong claim to be considered one. Here the myopic and the degenerative changes are probably independent although usually closely related. All of us remember the pitiable cases where the myopia starts early in life and goes on increasing relentlessly accompanied by degenerative changes in the fundi and vitreous, complicated by retinal detachment and macular hæmorrhages and going on to blindness. All the changes are degenerative and not inflammatory, resembling senile degenerative changes. It looks as though the eye is ageing very prematurely, that is, an abiotrophy. It is strongly hereditary, generally recessive. Consanguinity therefore, leads to a high incidence.

As regards the ætiology of degenerative myopia we do not yet know its full nature, but heredity certainly plays a very important part. The heredity is multiple. Axial length, degenerative changes and complications appear to be derived from different but related genetic factors. It is also evident that growth processes have an influence because there appear to be spurts of worsening during these periods. There is much to be said in favour of the biological view that it is due to primary overgrowth of the retina, the master tissue in the eye, combined with abiotrophic degeneration from a multiple hereditary complex. Other factors *viz.*, nutrition, exercise, endocrine influence and near work are of incidental nature. Of course excessive near work implies a lack of healthy exercise with its consequent effect on the general state of nutrition.

The suggestion was made sometime age by an ophthalmologist that the increasing incidence of myopia in our country in modern times may be due to the change of conditions in modern confinements. He thought that it may be due to the breaking away from the old conditions where the mother and infant were kept confined in a dark room for a number of days and that too much light was harmful to the eye of the newborn baby. I am mentioning this for what it is worth, but I do not think that we would like to condemn our women to the old primitive ill-ventilated and ill-lit confinement chamber but perhaps it may be good

to have comfortable but subdued lighting for the first few days of the confinement.

Another ophthalmologist, Plamonden (1958) thinks that myopia starts with a weakness of accommodation. The patient holds objects close to the eyes, following which further weakness and further myopia develop in a vicious circle. I have already mentioned the views of Kettersey and of Sato.

All this only shows how some diametrically opposite views are held about the ætiology of myopia.

CLINICAL SYMPTOMS OF DEGENERATIVE MYOPIA:—Unlike in simple myopia, there is much visual incapacity and corrected visual acuity is often bad. Also even with the correction, the patient is not comfortable. He is annoyed by the small and sharp images and feels strain on much use of the eyes. He is annoyed and worried by floating opacities of all sizes and shapes.

Complications:—Among the complications, retinal detachment, glaucoma and macular hæmorrhages are serious because of the serious loss of vision which they entail. About two thirds of all retinal detachments occur in myopia and about 5% of myopes develop a detachment. High myopia accounts for about 15% of cases of glaucoma, especially of the insidious type. It may be missed because of the insidious onset and of the tension not being unduly high and may even be low when taken by the usual method because of the decreased coefficient of ocular rigidity in myopia. (*Ophthalmic Literature* for 1958 : 430).

Prognosis of high myopia:—This presents another problem because of the conflicting views about its ætiology. The behaviour of the myopic eye appears to be independent of the environmental conditions, good, bad or indifferent. High myopia is quite common among the literate and the illiterate but the disability is not so great among the latter. It is equally common among the cultured and the primitive, among the urban rural population, among the intellectual desk-workers and the farm labourers, among the hygienic and the unhygienic schools.

The only factor of importance in any individual case seems to be the family history. But we see sporadic cases of even unilateral degenerative myopia with the other eye emmetropic and with no family history of myopia. We can only watch the case, hope and pray for the best and deal with the worst as and when it happens.

TREATMENT:—Prophylaxis is the best form of treatment. Two high myopes should not marry, and if they do, they should not have children. We should do active propaganda in this matter, so that the defective genes may gradually die out. There should be a planned genecide, which, in my opinion, is more

important than mere family planning. We should encourage healthy genes to survive and thrive and gradually wipe out all defective genes.

To show the disastrous results of mating of defective genes and to stress the importance of prophylaxis, I would like to give one example of a myopic family. It is a family of nine members, all myopic. All of them except the father were examined in May and June 1958.

The father has not yet been examined but I know that he is a high myope.

The mother aged 37 had been wearing glasses since her 17th year. She broke the glasses and was wearing an old pair of her husband's, which was minus 14 Ds R & L. Her myopia was more than -30 both eyes, but the vision with correction was only 6/60. Fundi were degenerative.

The eldest child, a daughter, aged 18 was not wearing glasses. She had -4·5 D of myopia with some astigmatism in both eyes. Fundi were healthy and corrected vision was 6/9 in both eyes.

The second, also a daughter, aged 16, was wearing -8 Ds R & L since her 6th year. Refraction showed an error of -13 in both eyes with degenerate fundi. Corrected vision was 6/12.

The third, a boy aged 15, was wearing since his 5th year -11·5 Ds with a cylinder in both eyes. Fundi were thin and showed myopic crescents. Refraction revealed an error of -22 in one eye and -18 in the other with corrected vision of 6 24 and 6/18 respectively.

The next, a boy aged eleven was wearing -5 and -5·5 since his 7th year. He had a myopia of -10·5 and -9·5 with corrected vision of 6/24 and 6/12 and had myopic crescents.

The fifth, a boy aged nine was wearing -5 and -4·5 since his 6th year. He had an error of -13·5 and -11·5 with a small astigmatism with normal fundi and corrected vision of 6/24 in both eyes.

The sixth and 7th are twin girls aged 7 and were not wearing glasses when examined by me. One of them had -6 and corrected vision of 6/36 in both eyes and the other -4 with corrected vision of 6/18 in both eyes. Both had normal fundi.

Correction of the optical error with lenses which give the best and greatest comfort is of course the first step in treatment, but is only the first step. Bifocals may be ordered even for young people if they are more comfortable with them.

The vexed question of tinted glasses cannot be dealt with in this short paper. Protection against ordinary sunlight during the day is given by glasses of any tint and may be necessary for people who have poor night vision and dark adaptation. Blue green glasses give all round protection against ultra-violet, infra-red and artificial light and should be prescribed in cases where there is sensitivity to these. Tinted glasses are not normally necessary for simple ametropes of the lower degrees.

Although, as already pointed out, environment does not seem to influence the incidence or progress of high myopia, we do not feel bold enough to ignore it completely and so we continue to give advice regarding attention to general health and ocular

hygiene *e.g.*, correct illumination, correct posture and about the correct print for reading. Avoidance of violent physical exertion should be stressed. Near work need not be curtailed but the modern school curriculum is certainly too-heavy for an young child. It keeps the child glued to the desk and books very much longer than is really good for him or her.

Gardiner (1958) has noticed that the rate of increase of myopia in children is less rapid in those with the highest intake of animal protein.

Then there is the question often asked by the patients, whether they can be cured of their defect without glasses. They see the tall claims made about the possibility of treating refractive errors without glasses. This is a very attractive prospect if it is true. Nobody likes to wear glasses if they can see well without them. As a matter of fact till the middle of the sixteenth century, the wearing of glasses was looked upon with great disfavour and was warned against by the ophthalmologists. But what place has visual exercise in the treatment of myopia? As already pointed out, vision involves a lower physical and a higher perceptual mechanism. Difficulties at the higher level may cause eye-strain as much as at the lower. There is no doubt that correct exercising of the higher mechanism will lead to a significant improvement in the total visual acuity. As with other functions of the body, vision also improves with practice, *i.e.*, seeing. This perhaps is the basis of the claim made by some people to cure such cases without glasses. Without condemning this claim outright, we should educate the public to the dangers of placing too much faith in these "treatments" and to the ridiculousness of some of the measures advised *e.g.*, swinging, nose-writing, sun-gazing etc. The only good thing that one can find in the elaborate ritual advocated is the palming, because of the rest it provides for tired eyes. The sun-gazing can be positively harmful and the rest are ridiculous pantomimes, which of course appeal to the credulous who are, however, soon disillusioned. Desperate people clutch at any straw, but we should warn them against clutching at every straw.

As regards other expedients in high myopia, the use of contact lenses especially of the latest corneal type will certainly be of help, provided they can be fitted satisfactorily and the patient can tolerate them for a reasonable length of time in the day.

Surgery, namely needling in the young and extraction of the lens in the older people, will have to be considered after carefully weighing the *pros and cons*. A degenerate eye with a tendency to spontaneous detachment is not an ideal one for removal of a clear lens. Prophylactic shortening of the eyeball by scleral resection is a somewhat heroic measure in bad cases.

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ANTIBIOTIC THERAPY: ADVERSE EFFECTS IN ACUTE APPENDICITIS BEFORE DIAGNOSIS

From their experience over a period of about two and a half years, Dietrick *et al* believe that patients with undiagnosed abdominal pain should not be given antibiotics until appendicitis can be definitely excluded. Their paper shows that 5 of a total of 46 patients undergoing appendectomy had been preoperatively or prediagnostically treated with sulphonamides or antibiotics, and the authors append a note on 2 additional patients similarly treated, one of whom died. This therapy, by obscuring symptoms, delayed and hampered the diagnosis with resultant increase in morbidity, length of hospitalization, and expense. In these cases, the number of complications was high.

Experience of this group indicates that appendicitis treated with antibiotics may lead to two clinical pictures: (*a*) patients obviously ill with masked and atypical symptoms, who require exploration on the basis of the clinical picture; (*b*) patients with symptoms so completely masked that no specific diagnosis can be made, who do not appear to require exploration on the basis of clinical findings, and who settle into chronic disability which may last months with occasional exacerbations.

In patients with abdominal pain and atypical symptoms, the physician should have a high index of suspicion and closely question the patient. If antibiotics have been given, exploration is indicated despite paucity of physical findings.—(*Annals of Surgery*, December, 1958, via *New York State J. Med.*, 15-8-'59).

FOOD ALLERGY MAY CAUSE URINARY SYMPTOMS

Food allergy may be the cause of persistent or recurring urinary symptoms when there is little or no disease in the urinary tract, three Chicago area physicians have noted.

Urinary tract allergy has been a recognized condition for nearly forty years, but it is rarely reported and the diagnosis is often missed, they said in the July 11, *Journal of the American Medical Association*. Frequently the condition may be misdiagnosed as cystitis (inflammation of the bladder), misplaced uterus, or pelvic inflammatory disease. Treatment of such conditions often gives partial relief, but the bladder symptoms usually continue.

The doctors believe that the possibility of allergy should be kept in mind in all obscure cases of cystitis, especially in persons who are otherwise allergic. They reported one case of a woman who had exhibited urinary tract symptoms for ten years. She also had a history of allergy. Skin tests indicated that she was sensitive to cabbage, peanuts, soybeans, and filberts. When avoiding these foods, her urinary symptoms disappeared. When she added them to her diet, the symptoms recurred.—(*N.Y. St. J. Med.*, 15-9-'59).

STEVENS-JOHNSON SYNDROME*

RAMESH C. AGARWAL, M.B., B.S. (Luck.), D.O. (Oxon.), D.O.M.S., R.C.P.S. (Lon.), F.R.S.M. (Eng.),

Honorary Ophthalmic Surgeon, Arci Clinic, Meerut, Irwin Hospital, New Delhi

THIS syndrome consists of the clinical manifestation of a symptom-complex consisting of an inflammatory skin-disease characterized by wide-spread lesions and bilateral conjunctivitis associated with rashes and constitutional symptoms of ordinary respiratory infection or toxic reaction involving the skin as well as the mucous membrane. The duration is short and nature benign. The clinical symptoms of this condition and its placement in a group have been matters of speculation by many clinicians. Since it is not purely an ocular manifestation the grouping becomes even more difficult as will be seen from the number of different headings under which this manifestation and its variations have been described. Alibert and Bazin (1822), Rigler (1852) gave a detailed description of the ocular complications. Fuchs (1876) described a case of similar nature and termed it, "Herpes iris conjunctivæ." Hebra (1876) gave it the name of "Erythema exudative multiforme." Fissinger and Rendu (1947) called it "Ectodermose erosive pluriorificielle." Badder called it (1925) "Dermato-stomatitis." Stevens and Johnson in 1922 reported two cases thinking it to be a new clinical entity but which eventually proved identical with the above conditions. Although they described nothing new or different to what had already been done, their names have somehow come to be associated with this syndrome.

Henceforth, the pathology of this condition has been reported upon differently. Lever (1944) considered involvement of the mucous membrane to be a variation and this was supported by Kove (1945). Sneddon and Murray (1947) believed this condition to be unrelated to skin disease. Mamelock and Laval (1955) think that this may be a variation of the same basic condition that causes ocular pemphigus (Infectious dermatostomato-ophthalmitis of Lunedei). Derrick Vail has placed it in the group known as "Diffuse collagenous diseases."

Clinically, the acute condition is characterized by high fever, exhaustion, headache, general toxicity, prostration and bronchopneumonia in severe cases. Sudden respiratory infection is the typical mode of onset and it is accompanied by a polymorphous symmetrically distributed cutaneous eruption, sometimes accompanied by vesicular or membranous stomatitis. Two types of cutaneous eruptions may occur within 24 to 72 hours :—(1) Vesiculo-bullous : the involvement of mucous membrane is more common and serious and constitutional symptoms are present

*Specially contributed to the ANTISEPTIC.

and (2) Erythemato-papular: the involvement of the mucous membrane and constitutional symptoms are less serious.

Lesions occur on the face, arms, legs and on the dorsal surface of the hands and feet. The scalp is free. There is involvement of the oral and nasal cavities and also of the larynx and pharynx. Vesicular eruptions may be found in the regions of the anus, vagina and glans penis. Ageloff (1940) reported purulent otitis media. Pereyra and Lorenzo (1951) reported dysuria and retention of urine. The condition may be aggravated by hypopyon, iritis and exudative neuro-retinitis. Obreg (1945), Loffler (1947), Robinson (1950) regard Behcet's syndrome as a variety of this disease.

When the eyes are affected, there is pain and photophobia, resulting in blepharospasm. Catarrhal, sometimes purulent conjunctivitis occurs clearing without any sequelæ, although the cornea may be involved secondarily. Pseudomembranous or membranous conjunctivitis may be found with widespread necrosis of the epithelium with subsequent cicatrization leading to symblepharon-formation and obliteration of the fornices and puncta causing stenosis of the lacrimal passages (Grove 1946). Corneal involvement consists of circumcorneal injection, loss of lustre and drying. There is ulceration leading to perforation, endophthalmitis and phthisis bulbi or scarring with or without ectasia or annular corneal abscess-formation (Agarwal, 1959). Mild cases may occur without corneal involvement and severe cases may prove fatal.

As a rule the patient recovers with no disability though a guarded prognosis should be given in view of the late sequelæ which may include even a fatal outcome.

The ætiology is unknown though Wolff (1949) suggested that it is a syndrome with various causes :—

(1) A virus theory has been considered though never proved.

(2) E. Ramel suggested that it is due to a hæmatogenous tuberculous infection though not confirmed by guinea-pig inoculation.

(3) Vitamin deficiency has also been considered to be a cause as some cases improved on Vitamin B-complex therapy.

(4) O'Donovan and Michaelson suggested an allergic theory. They said that some cases of epidemic kerato-conjunctivitis with skin lesions occurred during the rainy season in the Middle East.

(5) *Now* it is classified along with collagenous diseases (Derrick Vail).

Case report.—A Hindu male, thirty years of age came to the out-patient department of Arci Clinic with acute conjunctivitis with membrane formation in both eyes. The palpebral surface bled when the membrane was removed. The cornea was clear, the pre-auricular glands were tender and enlarged, the lips were dry and fissured. The buccal mucosa was ulcerated and covered

with a thin white patchy membrane. The tongue was raw with ulcers on its sides. The patient looked mildly toxic. He volunteered the statement that he had a rash over his hands and feet. Further examination revealed that his arms and legs and the whole of his back had a similar erythemato-papular rash. The face looked flushed and had a few papular patches. The temperature was 102°F. and the lungs were clear.

Pathological investigations showed a W.B.C. count of 13,000 per cmm. with 70% polymorphs. The smear examination showed gram-positive cocci only and no diphtheria bacilli.

TREATMENT :—Avil, Vitamin B-complex, and Ilotycin tablets, one of each was given three times daily. Symptomatic local treatment was given with a thorough conjunctival lavage with warm boric lotion to wash away the conjunctival discharge and debris. Local infiltration at the base of the membrane by an aqueous solution of penicillin (200,000) in one cc. of distilled water was given (Agarwal 1953), drops of Eyemide 30% and Ilotycin eye-ointment four times daily were given as local treatment. The membrane-formation ceased after four days' treatment. The conjunctival discharge became watery and the congestion and swelling decreased. The raw conjunctiva looked less raw. But the rash had disappeared even by the fourth day.

In the second week there was a tendency for symblepharon formation in the lower fornix. This was mildly broken by a smooth glass rod every time on the dressing day to avoid this formation and to prevent the closure of the lids (Agarwal, 1955).

In the third week the watering, swelling and congestion disappeared completely. The only small fold of mucosa connecting the bulbar and palpebral conjunctivæ in the lower fornix at six o'clock which persisted was left alone.

Superficial X-ray therapy for corneal lesions has been advocated and frequent syringing of the lacrimal passages has also been advised to prevent stenosis of the canaliculi but luckily it was not needed, as our case did not develop either complication.

Discussion.—I reported a case of membranous conjunctivitis in 1953, in the *Journal of Indian Medical Association, 22 :* 171–172, and this was followed by a report on seven cases in 1954 which was presented at the Nagpur session of the All India Ophthalmological Society under the caption "Acute membranous blepharo-conjunctivitis." This was subsequently called "Infectious type of epidemic kerato-conjunctivitis" by Hogan in his personal communication to me in 1957.

There was no skin-rash in any of those eight cases. But the present case under discussion not only showed stomatitis with membrane-formation and ulceration but there was also a marked skin-rash of an erythemato-papular character over the arms, legs,

face and the dorsum of the hands and feet. The rash was not marked over the abdomen and chest.

This case belonging to the third series of my study and investigation resembles the description given by Wolff quoting O'Donovan and Michaelson who studied such cases in the Middle East during the rainy season. But where to draw a line of distinction as to when this diagnosis of infective keratoconjunctivitis merges into the Stevens-Johnson syndrome with all the varying pictures described above, is not clear. Mamelock and Laval think that *skin-lesions* are prominent in *erythema exudative multiformae while mucous-membrane-lesions* are prominent in *Stevens-Johnson syndrome*. A combination of these two types of involvement is not infrequently seen as in the present case and this has been observed by other observers also.

Acknowledgement.—I am thankful to the staff of ARCI Clinic for their cooperation in preparing this case report. My thanks are also due to Dr. M. Prakash, Honorary Pathologist for his kind cooperation in my investigations.

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WARNING BY CHICAGO MEDICAL SOCIETY

Many simple eye disorders should be left alone rather than being treated with antibiotics or antibiotics-*plus*-hormones in shotgun techniques which "are of little value and which may cause a number of serious complications." Efforts should be made to determine the nature of the infecting organism, to govern selection of medication. And patients should be urged to throw out the unused remainder of eye medicines. After initial use, the eye drops and ointments can become contaminated by bacteria, yeasts or viruses capable of causing infections leading to blindness.—(Dr. Frank W. Newell, *Ophthalmologist, University of Chicago*).

THE MANAGEMENT OF GLAUCOMA FOLLOWING CATARACT EXTRACTION*

N. SRINIVASAN, D.O. (oxon.), D.O.M.S. (Lond.),
Hon. Ophthalmic Surgeon, Govt. Royapettah Hospital, Madras-14

ONE of the important causes for failure to obtain the desired result after cataract extraction is glaucoma or raised intra-ocular pressure. Recognition of this condition early in the post-operative period and modifying the treatment adopted *or* institution of adequate therapy would save valuable vision and cut short the post-operative period.

Both extra-capsular extraction and intra-capsular extraction of senile cataract and also discission for juvenile cataracts may give rise to this condition.

In discission for juvenile cataract it is suggested to disturb the cortex little in the first sitting and allow the aqueous gradually to work its way through the rent capsule, in order to prevent this complication. In favourable cases, however, a bold curette evacuation will remove the disturbed lens cortex and the eye will go through an uneventful post-operative period leaving a clear pupil. Anyway the eye should be carefully watched for signs of rise in tension and a judicious use of paracentesis, miotics or mydriatics and Diamox would help to tide over the condition. The optic nerve stands up to the rise of tension in secondary glaucoma, better than in primary glaucoma.

After extractions in senile cataract, the glaucoma may set in due to the formation of peripheral anterior synechia, iritis, hæmorrhage, epithelialization of the anterior chamber, pupillary block *or* malignant glaucoma.

There might have been a pre-existing glaucoma before the operation for cataract. In such cases, the tension could be controlled by miotics, or iridectomy or iridencleisis or a combination of the latter two and trephination before undertaking cataract extraction.

Glaucoma secondary to peripheral anterior synechia may come after a delayed formation of the anterior chamber or an adhesion between the hyaloid and iris to the wound or incarceration of the iris, vitreous or lens capsule to the wound. Vitreous loss during operation, may cause any of these to happen. The peripheral anterior synechiæ may be prevented by proper surgical technique.

When iris-incarceration is detected in the post-operative period, a strong miotic combined with a strong adrenergic agent will occasionally pull off the iris from the section. When there is definite prolapse of the iris of recent origin, a prompt repair

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operation should be performed. The conjunctival flap should be raised after perfect local anæsthesia and akinesia and then the iris freed from the wound with a repositor, pulled out and excised. Thermocautery is condemned on account of the danger of sympathetic ophthalmia. Iris-incarceration and iris-prolapse are dangers in simple extractions. A peripheral iridectomy would minimize the complication and suturing the section would further lessen the chances of iris prolapse.

Epithelialization of the anterior chamber is noticed several weeks after the operation. It may appear as an implantation cyst after a year or more. The cyst could be aspirated and hypertonic glucose solution introduced, or cauterized, or treated with diathermy. Epithelial down-growths would require irradiation before much damage is done by pressure changes.

Iridocyclitis is best treated in the early stages with mydriatics, steroids, Irgapyrin and by foreign protein-therapy. If, however, iridocyclitis has set in with plastic exudates, complete posterior synechiæ to the intact hyaloid membrane will lead to pupillary block. This is especially the case in simple extraction without iridectomy or where the peripheral iridectomy is closed with a membrane or is adherent to the wound. Typical iris bombee with shallow anterior chamber and raised intra-ocular pressure follow. Iridotomy is very useful to establish a passage between the anterior and posterior chambers. Sometimes pupillary block may be caused in round pupil extractions by a mushroom-like vitreous prolapse. Miotics worsen the condition. Mydriatics help inverse glaucoma. Permanent opacification of the vitreous-face occurs if it is allowed to remain long strangulated by the constricted pupil.

Glaucoma in aphakia which is not due to pupillary block may respond to miotics like D.F.P. (Di-iso-propyl-fluoro-phosphate) 0·05 to 0·025% in peanut oil; and phospholine iodide 0·1% to 0·25%, a very potent anti-choline esterase stable in aqueous solution has recently been introduced.

D.F.P. should *not* be used in patients with a previously narrow angled glaucoma or in those with pupillary block. It should also be avoided in those with a high degree of myopia as it may induce retinal detachment.

In milder aphakic glaucoma, a solution of pilocarpine nitras is useful. Diamox in combination with miotic therapy will be helpful.

If medical means fail, surgery should be resorted to. Cyclodialysis is the operation of choice. Cyclodiathermy in bad cases is useful as it partly puts the ciliary body out of action.

OCULAR AFFECTIONS IN DIABETES*

MD. SHAFI MEHKRI, B.SC., M.B., B.S., D.O.M.S. (Lond.),
Bangalore

DIABETES is a disease in which almost any tissue of the orbit or the eye may be affected in some way or other. Syphilis, tuberculosis, leprosy, and diabetes form a quartette in which almost any tissue of the eye or orbit may be affected by some manifestation of the disease.

It is not usual for diabetes to exist alone—it is usually associated with other conditions like tuberculosis, raised blood-pressure, intestinal stasis and toxæmia, pyorrhœa, or sinus affection. Diabetes with raised blood-pressure forms a bad combination, diabetes with tuberculosis is worse, but if all the three co-exist, it is a very bad combination indeed.

As is well known, the diabetic-patient is easily prone to dermatitis and cellulitis. A mere scratch is enough to start off a skin affection and involvement of deeper tissues. Thus an accidental cut or scratch of the skin round about the eye, or even a small furuncle may begin a cellulitis of the lids which may spread into an orbital cellulitis. A co-existent affection of the para-nasal sinuses makes the extension of the inflammation into the orbital tissue even more possible and the importance of this lies in the fact that an orbital cellulitis may easily lead to a cavernous sinus thrombosis with very grave results. In spite of efficient antibiotic and anti-diabetic treatment, a thrombosis of the cavernous sinus either ends fatally or leaves some permanent damage.

Ulcerative blepharitis, recurrent episcleritis, atrophic marginal keratitis and trophic ulcers of the cornea are not rare in chronic diabetes, especially when associated with ketonurea.

According to European authors, iritis and iridocyclitis are rare in diabetes. Iritis occurring in diabetics is said to be due to some inter-current infection and not to the diabetes itself. My experience has been that recurrent diabetic iritis is of common occurrence and may lead on to chronic iridocyclitis with firm posterior iris-adhesions, sometimes with a fairly heavy deposit of white or yellow keratic precipitates and even a hypopyon. They may of course, be an inter-current infection in most of these cases.

Intra-ocular operations on diabetics should be undertaken with caution, as there is a tendency to a greater degree of post-operative inflammation and for exudative or albuminous iridocyclitis to occur and also a tendency for hæmorrhages into the

*Abridged from an article read at the 'Symposium on Diabetes' at the Mysore State Ophthalmic Conference, 1959.

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eye. Iridectomy performed on diabetics sets free the iris pigment due to degenerative changes in the two pigmentary layers of the iris. Post-operative inflammations are likely to occur, but an efficiently maintained control of blood-sugar and a careful search for and suitable treatment of focal sepsis before eye-operations have given very good results and minimized excessive post-operative complications.

Rapid and erratic changes in refraction are common in diabetes, a transient oft-changing myopia associated with a weakening in the power of accommodation being usual. Our colleague Dr. H. Krishna Murthy who made a study of this subject presented his findings to the All India Ophthalmic Conference held in 1956. The vision for distance becomes dim, more often due to a myopia than to hypermetropia, but this refractive error keeps on altering with the degree of diabetes. Presbyopic correction of a higher degree than is warranted by the age, is accepted. In some cases, there is accommodation-failure. The onset of insufficiency of accommodation is sudden and bilateral with a myopic change with a rise in sugar-concentration and a hypermetropic change with a fall in blood-sugar. The changes are said to be due to alteration in the curvature of the lens or to œdema of the lens producing greater refractivity as in incipient cataract.

Changes in the lens of the eyes in diabetes are fairly typical. Small discreet rounded opacities of the posterior, and later the anterior cortex occurring in clusters are common. There are discreet "snow flake" opacities and also sub-capsular vacuoles. These opacities spread into other layers of the lens and nucleus, sometimes rapidly, and a diabetic cataract sometimes becomes fully formed within a few days or weeks necessitating an operation. It is the experience of many of us that these cases heal well after cataract extraction, provided the diabetic condition is brought and kept under control all the time and all foci of sepsis are adequately treated. The results are good, but if the patient hurts his eye after the operation, sometimes a recurrent leaking intra-ocular hæmorrhage may set in, which may take sometime before being brought under control.

The common changes in the fundus in diabetes are mostly the typical, round, white, solid-looking exudates of diabetic retinitis, and the retinal hæmorrhages, and sometimes pigmentary changes. What exactly determines the formation of retinal exudates is not known because, one fairly often comes across persons known to be diabetics for years, showing no diabetic exudates nor any fundal changes for that matter, and similarly, patients with multiple patches of diabetic retinitis have a diabetic history of fairly short duration. Quite often, diabetics with these hard discreet diabetic exudates go about without

complaining about the vision, until accidentally a new patch occurs on one or both macular regions, causing damage to central vision. Inflammation of the retina with spots of hæmorrhages and central punctate retinitis constitute the more usual fundus appearance. Exudates form later. *There is no demonstrable relation between the severity of diabetes and the extent of retinal changes.* Fundus changes may be seen in young persons with severe diabetes and in older persons with relatively mild diabetes. The changes commence in the periphery and approach the centre and the macula. Exudates tend to occur in a circle round the macula resembling retinitis circinata.

Retinal hæmorrhages are perhaps more common in diabetes than the typical exudates. The hæmorrhages may be small and round in the deeper layers of the retina and are said to be really micro-aneurysms, or they may be flame-shaped and superficial. Young diabetics are more prone to retinal hæmorrhages. Subhyaloid hæmorrhages, and even vitreous hæmorrhages have been seen in middle aged diabetics, especially if associated with sclerosis of vessels, and the blood, in organizing may lead to formation of bands of fibrous tissue "Retinitis proliferans" and later even to detachment of the retina due to the pull exerted by these bands of fibrous tissue. A few cases of central vein thrombosis have been seen in diabetics, but one cannot say that diabetes, as such, is the certain cause of such venous thrombosis. Occurrence of patches of choroiditis is rare in diabetes. The vitreous also develops opacities of variable types when fundus changes occur.

Optic neuritis and retrobulbar neuritis are of fairly frequent occurrence in diabetics, its incidence being estimated to be from 10% to 16% of the total. This may be a part of multiple diabetic neuritis. The optic neuritis is often bilateral, more so in males and is said to be due to acidosis. Diabetics the middle age with sedentary habits, perhaps associated with digestive disorders and pyorrhœa, seem to be more prone to optic neuritis.

Failure of convergence of the eyes may be the first symptom of diabetes.

Paralysis of extra-ocular nerves is of quite common occurrence in diabetes. Ocular palsies in diabetes are usually monocular, but binocular affection has also been seen. This may take the form of a mere drooping of the upper lid, *i.e.*, ptosis or one or more muscles may become pareised. When 3rd nerve paralysis occurs in diabetes, it is sometimes of the 'total' variety 'Ophthalmoplegia interna,' with the involvement of the sphincter pupillæ centre. Lateral rectus paralysis is most common and the trochlear nerve (4th nerve) is affected along with the 6th in some cases.

Diabetic ocular palsy may be due to a neuritis of the ocular nerves and form part of the polyneuritis common in the disease

or may be due to hæmorrhagic or thrombotic changes. Complete recovery is said to be the rule in 2 or 3 months when the cause is removed by suitable treatment. It is estimated that of all diabetics, 5% have ocular palsy. Of a hundred cases of such palsy, that of the 6th nerve or abducent forms 61·5%; oculo-motor or 3rd nerve 19·5%; trochlear 8% and ophthalmoplegia 10%. Sometimes a residual permanent squint is left in spite of treatment. Exophthalmos due to an increased deposit of fat in the orbital tissue behind the eye has been reported in diabetics by several authors.

Marked softening or hypotony of the eye is typical of diabetic coma. Replenishing of the body-fluids improves the condition.

Lipæmia of the retina is a condition that occurs in many diseases. It is typical of diabetes associated with acidosis. Fat in an emulsified state flows along with the blood in the vessels and gives a very characteristic fundus appearance.

Hand-Schuller-Christian disease or Diabetic Exophthalmic sysostose is a condition in Diabetes insipidus with lesions of membranous bones of skull and deposit of xanthomatous tissue in orbits.

Field-changes in diabetics are variable within wide limits. There may be mere scotomata, or there may be quadrantic field defects on even hemi-anopias. There is therefore, no definite pattern in the field changes in diabetic conditions.

Older diabetics are said to be prone to glaucoma both simple and congestive. Secondary fulminating glaucomata due to sudden massive intraocular hæmorrhages have been seen fairly often, sometimes necessitating enucleation.

THE CLINICAL FEATURES OF THE MIDDLE LOBE SYNDROME

Twenty-seven cases of middle lobe syndrome, 21 due to inflammation and 6 due to a neoplasm, had come under observation at the Development of Surgery, University of Marburg, during the past 6 years. The clinical symptoms—most commonly chronic productive cough, sometimes blood-stained, and pain in the anterior chest—were generally mild compared with the morphological changes.

Great importance attaches to a correct X ray diagnosis, as this lesion, an isolated atelectasis of the middle lobe, is apt to be mistaken for interlobar effusion, pleural adhesion or tumour. Surgical treatment of the disease is advisable, particularly if the possibility of carcinoma cannot be definitely excluded, or if it is complicated by chronic suppuration, bronchial stenosis, bronchiectatic abscess or broncholithiasis.

Of the 21 patients with inflammatory processes, 14 were treated by surgery. There were no postoperative deaths, and the long-term results were satisfactory.—(*Arch. Klin. Chir., 29:* 1959, 231, via *Germ. Med. Months*, July '59).

VENEREAL DISEASES IN RELATION TO THE EYE*

P. N. RANGIAH, M.D.,

Director, Institute of Venereology, Govt. General Hospital, Madras-3

THE subject of my paper is 'Venereal diseases in relation to the eye'; it is just a token caption under cover of which I wish to appeal to the medical profession for a revival of interest in the subject of venereal diseases—certainly a source of survival for the handful of venereologists of today.

It may seem paradoxical that venereal diseases should be tagged on to the eye. It is a well-known fact that it is not the eye, but quite a different part of the human anatomy, namely the genital zone, that is monopolized by venereal diseases. While it is admitted that any or many orifices in man could be improvised and misused for sexual purposes by perverts, the authorities on jurisprudence have not mentioned the eyes as having ever been used for the purpose, except perhaps for starting the whole sexual episode which culminates in the knotty problem of venereal diseases.

Non-sexually however, the eyes may get involved in various venereal diseases; five of them are the accredited ones, *viz.*, the two granulomas of venereal origin, chancroids, gonorrhœa and syphilis.

The available literature of old times and the present day text books contain records of instances of syphilis of the eye as extra-genital manifestations in the primary syphilitic phase; ocular involvement has been recorded in secondary syphilis; instances of tertiary syphilis of the eye are not wanting.

Gonorrhœa has been known to involve the eye both in the early and in the late phases of Neisserian infection.

Chancroids however, have not been incriminated in the available literature as causing eye diseases. Even so, Donovanosis does not find a place in the eye. But lymphogranuloma venereum, a viral infection, has been described as involving the eye primarily and or secondarily to infection elsewhere in the body.

We concede that venereal diseases are capable of affecting the eye primarily through mediate transmission of the infection or secondarily through hæmatogenous spread, so long as the necessary host-parasite environmental relationship is satisfactory.

A reference to the records of the Institute of Venereology over 2 decades appears to reveal the rarity of the ocular involvement in venereal diseases through primary inoculation of the eye

*Read at the VII Madras State Ophthalmic Conference held at Madras on 18th and 19th October, 1959.

Specially contributed to the ANTISEPTIC.

in venereal infections. A single case record of chancre in the eye was very much discussed and demonstrated at the Madras Medical College Exhibitions. It is unfortunate that I am unable to get at that single valuable clinical photograph for publication.

So far as secondary syphilis is concerned, a serious observation has been made that in many of our cases of early syphilis with florid eruptions over the skin and mucosæ, no definite macroscopic lesions have been met with on the external parts of the eye which would suggest the participation of the eye in the clinical syndrome of secondary syphilis. This absence of eruption on the visible and accessible part of the anterior portions of the globe is in strange contrast to exanthematous fevers in which both the conjunctival sac and the cornea are found to be involved in viral infections.

Quite a number of cases of ocular involvement in the iris in the secondary phase of syphilis with or without an accompaniment of syphilitic eruption on the skin and mucosæ or in the tertiary phase of syphilis have been treated in the Madras Institute of Venereology. The diagnosis of syphilitic iritis was made on the basis of evidence in favour of the concomitant presence of syphilis elsewhere in the body clinically and/or serologically, together with evidence of involvement of the iris concerned as reported by the Ophthalmologist. The luetic diagnosis seems to have been mostly circumstantial. At no time was there any proof of syphilitic infection produced by the demonstration of the *treponema pallidum* in the iris concerned. Elsewhere in the world treponomes have been demonstrated in the structure of the iris but *not* in the fluid about the iris in the anterior chamber.

Macroscopic tertiary lesions in the anterior segment of the eye have been met with.

Numerous records of involvement of the posterior segment of the eye in syphilis are available; beyond stating that the posterior segment of the globe shows signs of the disease both in the early and late phases of syphilis, it has been our misgiving that the specific descriptive terms employed in syphilology could not easily be applied to the affection of the particular parts in the posterior segment. To be frank, it is not possible to say whether the optic nerve, the retina, or the choroid was easily undergoing gummatous changes or nodular ulcerative changes.

Syphilis of the eye has been noted both in congenital as well as acquired syphilis. In congenital syphilis while chancres were not seen, secondary and tertiary manifestations have been noted. The *cornea* would appear to be the structure most often involved in *congenital* syphilis, while the *iris* was relatively more frequently involved in *acquired* syphilis. It has been a problem to appreciate why the cornea was so much the target in congenital syphilis and only less so in acquired syphilis. This has been

Interstitial keratitis in prenatal syphilis:

Fig. 1. Clavicular sign.

Fig. 2. Episcleritis

Fig. 3. Gumma: sclera.

Fig. 4. Gumma: iris.

FIG. 5. Cong. syphilis with blepharitis.

FIG. 7. Interstitial keratitis.

FIG. 6. Gonococcal conjunctivitis in an adult.

FIG. 8. The young with interstitial keratitis.

the unsolved problem, one of the many mentioned by late Prof. Moore. Probably this will never be solved, as Moore is no more. In the diagnosis of ocular manifestations in syphilis as occurring in congenital syphilitics, support was available from the other stigmata of congenital syphilis present in the same individual. But it sometimes happened, that the corneal involvement was the only abnormal finding in a patient and then if this occurred during the second or third decade of life the puzzling problem was posed as to whether the keratitis may be of acquired syphilitic origin. We have had an opportunity to study a series of cases of keratitis and after considerable discussion we have proposed to place them in the category of interstitial keratitis in acquired syphilis.

The posterior segment involvement in syphilis particularly when the optic nerve is affected, occurred either as an isolated event or was coupled with evidence of involvement of the rest of the central nervous system. In our series, the optic nerve involvement would appear to have taken the first rank in the incidence of syphilitic involvement of the different parts of the eye. The macula, the retina, the choroid, the sclera and the conjunctiva, the extra-ocular muscles of the orbit were also all involved in syphilis.

As regards gonorrhœa of the eye, during the past 20 years, we have seen only a sprinkling of gonococcal conjunctivitis. This statement, I presume, is in order, for babies are not born in the Institute of Venereology. It is only the obstetricians and the gynæcologists in public or private institutions who can speak with accurate information about the incidence of gonococcal ophthalmitis. The other place where such information may be had is the ophthalmic hospital. Through the kindness of the Superintendent of the Government Ophthalmic Hospital I had occasion to look into their annual statistics. Annual figures for gonorrhœa under age-period "0" find a place in the records. Can it be that ophthalmia neonatorum *i.e.*, gonorrhœa within 21 days of birth finds a place in the ophthalmic hospital? There were 52 cases in 1954. In 1956 there is a reference to the occurrence of gonococcal ophthalmia in 25 new-born. I shall not say more, but will refer to the case of an infant, admitted with purulent ophthalmia 4 years ago into the Institute of Venereology and to a later case of another baby brought to the Institute with evidence of congenital syphilis where the eyes were involved. Materials examined from the conjunctival sac revealed not only Neisseriæ gonorrhœæ stained by Grams but also treponema pallidum by darkfield illumination. As regards adult gonorrhœa of the eyes, a few cases are on record.

It looks odd to the venereologist to read elaborate descriptions in text books of the hæmatogenous Neisserian infection such as

iritis, choroiditis, optic neuritis, tenonitis, thrombophlebitis of the central vein of the retina and dacryo-adenitis. We have not had much experience of this. But with reference to iritis suspected to be of gonococcal origin, I may point out that very careful investigations were conducted in the V.D. Laboratory of the Institute of Venereology to confirm the existence of gonorrhœa in patients who come to us with a diagnosis of gonococcal iritis. We have not been lucky in discovering gonococcus in the individual patients concerned. I must say that neither the culture nor the gonococcal complement fixation test was carried out, although we could have done them in our laboraotry. It is on the basis of this disappointing experience that I consider that metastatic gonorrhœa in the eye is not an easily acceptable proposition to me.

I would like to affirm that chancroids and donovanosis do not involve the eyes.

We have not so far come across cases of primary lymphogranuloma venereum of the eye. But over a dozen cases of an allergic manifestation in lymphogranuloma venereum in the form of conjunctivitis, episcleritis and keratitis have been recorded in patients suffering from inguinal and ano-rectal manifestations of lymphogranuloma venereum.

I have seen the case of a patient (V.D.O.P. 5989/53) who was diagnosed to be suffering from Iritis of viral lymphogranuloma-venereum-origin.

It will be seen from the above review of the clinical findings in early phases of the different venereal diseases occurring primarily, and exogenously, that the patients go elsewhere and so we miss them. But those with ocular ills associated with the late phases of the different venereal diseases resulting from a systemic spread of the infections have frequently attended the Institute of Venereology. But these are sporadic admissions. It seems to me therefore that to have a clear vision of venereal diseases in relation to the eye, the Venereologist and the Ophthalmologist should be combined in one or the Ophthalmologist and Venereologist should work in close collaboration preferably at the Ophthalmic Hospital. In no branch of medicine is the aphorism, "Seek and you will find," so paying as in the branch of ophthalmic medicine and surgery.

To substantiate the statement that a collaborative research discovers a bumper crop of ocular diseases connected with venereal diseases, I may mention that prior to 1957-59 the annual statements submitted by the Ophthalmic Hospital and the Institute of Venereology showed poor figures for venereal diseases relating to the eye. It was the late Dr. R. E. S. Muthayya to whose memory we pay our affectionate tribute, who demonstrated that amongst the venereal diseases, syphilis played an important

role in the production of ocular illnesses. Inspite of difficulties associated with the tests for serology in those days, he calculated that 17% of the eye conditions due to infections and not to genetic or geriatric causes, were associated with syphilis. My Chief, whose words I echo, was also interested in similarly calculating the incidence of syphilis of the eye. Unfortunately the subject of syphilis does not find favour in medical circles to-day. It is wishful thinking on the part of many of us that syphilis standing as the synonym for venereal diseases is off the picture. There is however, no reason for doing so.

Syphilis in the U.K. may have lost its pride of place in the list of ætiological factors responsible for ocular ills. Sorsby's analysis of the blind in England and Wales showed among many high-lights that syphilis is now, relatively speaking, a minor cause of blindness. In U.K. it will be remembered granulomas, of venereal origin are a rarity, chancroids a trifle and gonorrhœa, but for the minimum percentage incidence of penicillin-resistance, is now a controlled communicable commodity. Syphilis in U.S.A. is under very severe check. In 1953 Bruetsch referring to the Blind Register maintained in U.S.A., pointed out that at any time the number registered therein exceeded two hundred thousand. Amongst these atleast 38,000 were blind due to syphilitic optic nerve atrophy.

What is the situation in regard to syphilis in Madras City, Madras State or India? Between 1952 and 1958 syphilis had shown a steep decline at the Institute of Venereology. I maintain this is a false drop. I will not go into the reasons for the attitude I take at the moment in this regard.

But syphilis of the eye was the subject of an enquiry by the Madras State Research Committee. Both the Superintendent of the Government Ophthalmic Hospital and myself are very grateful to the Director of Medical Services and the Secretary of the Madras State Research Committee for their having kindly permitted us to study ocular syphilis in collaboration. For 22 months we studied the subject with the aid of special officers posted for the enquiry from both the institutions, and we have gathered a large volume of valuable data. The protocol was that every suspected inflammatory condition of the eye was serologically tested by the VDRL slide-test. The positive reactors were thoroughly examined by the research officers and the ocular findings recorded in prepared *pro-formas*. The patients with the *pro-formas* were examined again at the Institute of Venereology for evidence of past or present venereal disease. The systems were examined; the spinal fluid was studied; roentgenological examination of the cardiovascular system was made. When any doubt as to the existence of syphilis arose, periodic conferences were held to decide the issues. It will be seen that

during the period of enquiry 1,067 out of 6,563 cases (16%) were sero-positive reactors. Nearly all of them went through the examinations and we had reason to consider that 75% of them were syphilitics.

But whether the ocular condition in them was due to syphilis or to other causes operating, appeared at times to be baffling. For instance, a positive reactor had glycosuria, proteinuria, high blood-pressure, a positive Manteux, a positive Frei, or threads in the urine. Barring such complicated cases the others were simple; and the sex-incidence of men to women was as 2 : 1. Optic nerve involvement headed the list; next came iris; then cornea; following this was change in the lens and so on. (*vide statement Table I*, p. 27). Every patient diagnosed as syphilis had the benefit of the standard course of syphilotherapy and the standard topical applications to the eye. Wherever necessary, fever was induced or corticosteroid administered. It is not possible in this short paper to give details of every one of the categories of ocular syphilis. I may be able to compile a detailed statement in course of time.

Meanwhile, I shall conclude by saying that the immediate response to treatment has been highly satisfactory. What the follow-up may reveal is a matter for conjecture and for pursuit also. Unfortunately the enquiry has been terminated. But I am hoping to be able to restart the enquiry and continue investigation on the lines mentioned already and following them up over years to determine the value of the different types of treatment.

In the management of ocular syphilis the main principle is that we should appreciate that syphilis is insidious, and ubiquitous and can cause havoc and may be easily missed if one is not on the alert. In this enquiry 1,000 cases were discovered. What is to be the fate of the undiscovered? The outcome of untreated ocular syphilis is, as we all know, blindness. Authorities on the subject are emphatic that this one single item alone, optic atrophy, is preventable if one is alert to the existence of syphilis and the ultimate outcome of untreated syphilis of the eye. We have no registers of the blind. We do not support the individual blind person with 50 to 90 dollars a month. The high infantile mortality rate and the poor ageing rate of the people of our country, of course, have helped us to flood out from our midst a large proportion of the would-be armies of the blind. What is the remedy? Shall we remain blind to the incidence of blindness. Can we afford to remain complacent in this important matter?

I am reminded of the tale of woe of one patient in our recent enquiry. He became blind in his thirties, his wife discarded him stating that she was not prepared to earn and cook for the blind husband and sought shelter in another's bosom!

Blindness to a large extent is preventable but not easil treatable. Let us rise to the occasion, recognize the futu victims of blindness through greater use of the perimeter and th ophthalmoscope on one side and serology on the other and trea them to save them.

TABLE I

Showing the total number of blood specimens examined with results

Total No. of bloods–S.T.S. done from 3rd May 1957 upto 31st March 1959	...	6563	
Total No. of sero-positive cases	...	1067	: 16·2%
Total No. of sero-positive cases that turned up at Institute of Venereology	...	945	

Males : 632 Females : 313

TABLE II

Showing the sex-incidence and anatomic distribution

Anatomic distribution		Male	Female	Total
1. Lids	...	10	3	13
2. Lachrymal apparatus	...	7	9	16
3. Conjunctiva	...	8	3	11
4. Episclera and sclera	...	4	6	10
5. Cornea	...	90	62	152
6. Iris	...	124	57	181
7. Lens	...	76	57	133
8. Choroid and retina	...	51	6	57
9. Macula	...	74	32	106
10. Optic nerve	...	137	50	187
11. Errors of refraction	...	11	7	18
12. Extraocular muscles	...	11	3	14
13. Orbit	...	7	1	8
14. Miscellaneous	..	22	17	39
Total	...	632	313	945

TREATMENT OF RECURRENT STYES

A stye is furuncle of the eyelash follicle caused by the Staphylococcus aureus. Recurrent styes are a major problem and may completely disable an otherwise healthy patient. It has been found that nasal carriers of the staphylococci seem to be more susceptible to the infections.

Copeman showed that the nasal carrier-rate of Staphylococcus aureus was considerably greater in patients with *recurrent styes* than in the general population or in patients with *sporadic styes*.

The patients were then treated with an antibacterial ointment of a neomycin-gramicidin mixture. This was applied to the anterior nares four times daily for ten days. A control group of patients used the ointment without the antibiotics. In the treated patients, the cycle of recurrent styes was broken for as long as three months. The control patients continued to have recurrent styes. The author recommends that in recurrent styes, the anterior nares as well as the eyelids be treated with effective antibacterial ointments.—(*Lancet*, *2* : 728, 1958, via *G.P.*, April 1959).

SUPRACONDYLAR FRACTURE OF THE ELBOW

The supracondylar fracture of the humerus occurs most commonly in the child and young adolescent. Associated soft tissue trauma may result in the rapid appearance of swelling and hæmorrhage. The usual deformity is increased prominence of the elbow posteriorly, with accompanying prominence in the soft parts just above the elbow anteriorly, due to the anterior angulation of the humerus at the fracture site. This deformity, unless corrected, may play a major role in the complications which can arise as the result of this fracture.

The following points seem worthy of consideration in treating cases of this type :—

(1) Supracondylar fracture of the humerus should be treated as an emergency condition by the institution of immediate treatment.

(2) A child receiving such a fracture should remain under close observation in the hospital until all danger of vascular embarrassment has subsided.

(3) Early and immediate reduction of the fracture hastens convalescence and reduces the incidence of potential complications.

(4) Where swelling and vascular embarrassment are severe, realignment of the fragments by manipulation, and the application of skeletal traction offer the best method of re-establishing good circulation.

(5) Open reduction should be reserved for those cases in which the method of manipulation and traction has failed, or those with impending Volkmann's ischæmia.

(6) Open reduction reduces prognosis for a good functional end-result. —(*West. Virg. Med. Jour.*, July 1959).

ANTIBIOTICS IN PROPHYLAXIS

Concise criteria for the use of prophylactic antibiotic coverage :—

(1) The infection to be prevented must be a predictable one initiated by a specific organism.

(2) The organism must be consistently sensitive to the drug used and show little or no tendency to produce resistant-strains.

(3) The individual to whom prophylaxis is applied must be expected to be exposed and susceptible to the particular infectious agent.

(4) The drug used must be practicable from the standpoint of cost, effectiveness, side-effects and toxicity.

Indications for coverage are :—

(1) Control and or prevent infections by hæmolytic streptococcus and its complications. (*a*) Rheumatic fever—initially and to prevent recurring attacks (*b*) Valvular heart disease. (*c*) Congenital heart disease. (*d*) Surgery on the heart or valves. (For the prevention of spontaneous or postoperative bacterial endocarditis).

(2) Gonococcal infections : (*a*) Newborn—eyes ; (*b*) adult contacts.

(3) Syphilis in adult contacts.

(4) Meningococcal infections in epidemic contacts.

(5) Bacillary dysentery in epidemic contacts.

(6) Surgery through infected or contaminated accidental wounds or burns.

(7) Surgery in any infected field or near established infections.

(8) Preparation for gastrointestinal surgery.

(9) Presence of indwelling catheters or surgery on a deranged urinary tract.

(10) Surgery on injuries to oral and related cavities.

(11) Surgery in elderly people with chronic lung disease or abscesses.— (*J. Iowa St. Med. Soc.*, Aug. 1959).

SOME THOUGHTS ON THE VITREOUS*

P. SIVASUBRAMANIAM, F.R.C.S. (Eng.), D.O.M.S. (Lond.),
Surgeon, Victoria Memorial Eye Hospital, Colombo

THE vitreous humour has in more sense than one been in the backwoods of ophthalmology. Its inaccessibility and therefore its ill understood properties and functions certainly invested it with a mantle of mysticism. It was, however, taken note of by anatomists of the Hippocratic era and by poets and artists. Both Shakespeare and Rembrandt were aware of the quality of the vitreous—notably its lustre. The former refers to this in King Lear (*Act 3, Sc. 7*):

> "Out vile jelly
> Where is thy lustre now?"

where Cornwall is gouging the eyes of the Earl of Gloucester.

We in the modern era know this too and perhaps a little more through the work done on animal and human vitreous with the help of biochemical studies and the use of the slit and electron microscopes. What little was seen of the vitreous in the earlier era was with the ophthalmoscope—opacities, the result of uveal inflammation, hæmorrhage, parasitic cysts and perhaps tumour masses. It is beyond the scope of this little dissertation on the vitreous to go into details of the physical, biochemical and microscopic properties. Reference will be made to certain anatomical and physiological features in so far as they help us to understand the role of the vitreous in health and disease with particular reference to therapeutic potentialities and to surgical attack on it. This indeed is the aim of the ophthalmic clinician whose primary concern is the understanding of the role of the vitreous in ocular disease and the institution of efficacious remedies.

The vitreous is a gel and is one of the transparent media. It owes its gel state to the presence not merely to hyaluronic acid but also to the way in which the molecules appear to be aggregated rendering the vitreous highly viscous.

Embryologically the vitreous is of duplex origin, the primary being mainly mesodermal, the secondary and tertiary being ectodermal—the last being a secretion of the ciliary epithelium.

Functionally the vitreous has two important aspects at least from a mechanical point of view. *Firstly*, it helps to keep the retina apposed to the choroid by cushioning it. *Secondly*, its foremost part, the tertiary vitreous is specialized to form the zonule of the lens which not merely steadies the lens but also transfers to it the state of tautness or slackness induced by the tone of the ciliary muscle.

*Specially contributed to the ANTISEPTIC.

Some practical problems.—*Cataract surgery*:—Having made a short resume of the features of the vitreous it is now appropriate to pass on to consider some practical problems that we are often confronted by. One of the first things that flashes across one's mind is the problem of vitreous loss on the table in cataract surgery especially in intracapsular extractions. Loss of large amounts of vitreous, especially if solid, is calamitous to the operated eye if not immediately due to collapse of the globe, at a later date due to retinal detachment.

Special studies and researches into the nature of the vitreous and the zonule of the lens have indicated that the lens is steadied not only by the zonule but also by the anterior face of the vitreous at the patellar fossa by the ligament of Wieger. The origin of the zonular fibres in the region of the ora serrata is a site of firm attachment of the zonule as well as of the vitreous. The ora serrata is also the site at which cystic degeneration is present. With advancing age the zonular attachment is less firm owing to its thinning, the hyaloideo-capsular ligament is weaker and the cystic degeneration at the ora is more marked. These changes are in a way favourable to the successful execution of intracapsular extraction of the lens.

Undue trauma, however, roughness or faulty manipulations during extraction can cause escape of vitreous and invite an immediate retinal detachment by undue pull on the ora serrata. This may occur as a retinoschisis to be followed later by a detachment or a detachment may occur immediately. The attachment of the lens to the vitreous is demonstrable experimentally by the hanging lens-vitreous preparation. If the sclera and cornea of an excised eye are carefully removed by dissection under water and suction applied to the anterior lens capsule, the vitreous hangs on to the lens and to the ora serrata. This experimental finding is well seen in the practice of intracapsular extraction in the young. Such extraction with an already inherent difficulty imposed by the firm zonular attachment is made more so by the lens-vitreous unit by virtue of the adhesions referred to above. As is the experience of surgeons practising intracapsular extraction, great difficulty is encountered in peeling the zonular fibres and the anterior vitreous face off the lens to effect delivery of the lens in such cases.

In the light of modern advances in cataract surgery with the use of alpha chymotrypsin, probably more cataracts in the young would be extracted intracapsularly but a word of caution appears to be necessary. The young zonule itself appears to be more resistant to trypsin and what is more difficult to attack seems to be the hyaloideo-capsular attachment posteriorly.

Despite all the precautionary measures that one may adopt in cataract surgery there is still the problem of vitreous loss

attending cataract extraction. One is only too familiar with the inexorable ooze of vitreous at the time of delivery of the lens. Such a herniation of vitreous may be dealt with by trimming with a de Wecker scissor and satisfactory apposition of the wound edges may be achieved. This procedure, however, does not prevent an updrawn pupil later on. The writer has found a bold sphincterotomy inferiorly despite the oozing of vitreous at the time of effecting this step, to be the most satisfactory and gratifying procedure to bring about sound and early wound-healing and also to prevent up-drawing of the pupil. Incidentally this step also forestalls a secondary glaucoma consequent on a dumb-bell shaped herniation of the vitreous at the pupil which grips the waist of the dumb-bell. Sphincterotomy releases the grip and the vitreous slowly sinks back into the vitreous chamber.

Another manner in which vitreous may be lost is dependent on the rigidity of the sclera. In some the sclera is flaccid and with the release of the intra-ocular tension on incising the cornea the whole globe so to say collapses and the vitreous is more or less driven out of the scleral bag. This calamity is now being circumvented by using a metal ring about 18–25 millimetres in diameter, which is sewn on to the sclera concentric with the limbus. The rigidity of the ring prevents collapse of the globe.

If large amounts of vitreous are lost at operation, a vitreous implant is the ideal solution—a subject which will be dealt with under the next section.

Retinal detachment.—As alluded to earlier, the vitreous keeps the retina apposed to the choroid. In states of retraction of the vitreous there is also inevitably detachment of this body. When such detachments occur a retinal tear is easily initiated especially in the presence of retino-vitreal adhesions. Similarly a liquefied vitreous is responsible for the commencement of a retinal tear as motion of the eye relative to the head causes a momentum to be created in the liquid vitreous which in turn exerts traction on a retino-vitreal adhesion.

This is a pointer in certain cases of retinal detachment where major surgical procedures become necessary instead of the classical Weve's diathermy operation. One of the indications for a scleral resection is retraction of the vitreous, in which circumstance the volume of the vitreous is insufficient to fill the globe completely.

Some therapeutic measures.—Excepting the routine trimming of the vitreous herniation at operation, surgical attack on the vitreous was unheard of some years back. It is now the practice in many parts of the world to embark on surgical procedures involving and/or utilizing the vitreous. In clouding of the vitreous due to hæmorrhage that has leaked into it and due to inflammatory products, the vitreous may be aspirated and

replacement be made with an equal amount of normal saline or the patient's own cerebrospinal fluid or better still with cadaver vitreous. In cases with the proper indications quite gratifying results have been achieved. In fact it is the opinion of some surgeons that the mere aspiration of turbid vitreous is sufficient to effect clearing.

The greatest advance in ophthalmic surgery in recent times is the implantation of vitreous in retinal detachment. In addition to the surgical techniques so far employed in detachment of the retina, it was the custom to introduce normal saline or cerebrospinal fluid or air at the end of the operation to effect a good apposition of the detached retina and at the same time to expel the sub-retinal fluid from the eye. Air would rise upwards and so would push the detached retina against the choroid, provided the patient's position in bed was so maintained as to keep the detached area upwards; it would be ideal for upper detachments. This, however, would run counter to the other principle adopted—namely of allowing the detached area to be the most dependent part so as to permit of drainage of the sub-retinal fluid. Air probably has one advantage in that it contains oxygen. Both saline and cerebrospinal fluid have no viscosity comparable to that of vitreous and so would run into the inter-retinal space and get absorbed. A vitreous implant on the other hand would appear to be the best, for one thing it is the best substitute for vitreous that is undoubtedly lost in the form of sub-retinal fluid. Secondly, its viscosity which is equal to that of the vitreous within the eye will prevent its easy running out into the sub-retinal space. It is likely that the quality of the patient's vitreous is improved by the fresh vitreous that is implanted.

The transplantation of vitreous is also practised in certain ocular disorders in which the vitreous is affected. Here the aspirated vitreous is replaced by an equal amount of vitreous.

Some points in technique.—The collection of vitreous from cadaver eyes is simple in institutions where organized eye-banks exist. Even without such elaborate arrangements, it is within the means of any ophthalmic surgeon to collect vitreous from a cadaver or recently enucleated eye. Sterility is important and all the aseptic precautions practised in any surgical operation should be rigorously adhered to. A site on the equator of the globe is chosen for entry and after touching the surface of the sclera with an electric cautery and within the limits of a pre-placed purse-string suture or a double mattress suture, an 18 gauge needle is passed through a small incision on the sclera into the vitreous cavity. The needle is directed slightly backwards so as to avoid the lens. The plunger of the syringe attached to the needle is withdrawn till most of the vitreous is aspirated

This is now transferred to a sterile rubber capped vial. Storage is in a refrigerator at 4°C, and may last as long as 3 to 4 months. If an eye from which a corneal graft is to be taken is being utilized for vitreous donor material the whole eye may be stored as for keratoplasty and the vitreous drawn at the time the graft is to be taken.

The recipient eye is usually entered from the temporal and inferior quadrant after a few surface diathermy applications are made. The needle used is of the same calibre and is directed slightly backwards so as to avoid injury to the lens. The vitreous in the syringe is slowly pumped into the eye till the intra-ocular pressure rises to about 35 to 40 mm. Hg., Schiotz. The preplaced mattress sutures are pulled tight, as the assistant withdraws the needle and syringe. In transplantation the affected vitreous is first aspirated and an equal amount of fresh donor vitreous is placed.

Hazards.—Foremost among these would be the possibility of bacterial contamination and infection of the recipient eye. Contrary to popular belief, it is indeed fortunate that such infection has hardly been known to occur. In some clinics the view is gaining popularity that the vitreous has some anti-bacterial properties. Cultures taken from fresh as well as stored vitreous have been sterile, even after three months.

Some personal experiences.—From November 1950 to November 1959 the following cases have been dealt with by surgical procedures on the vitreous:—

Indication	Nature of operation	No. of cases	Result
Vitreous opacities	Aspiration C.S.F. replacement	4	3 improved: no central vision
Eale's disease	Aspiration, C.S.F. replacement	2	One improved to 6/6.
Ret. detachment	Implant	4	3 improved
Eale's disease?	Transplant	1	Improved

NOTE:—All eyes in the instances of vitreous implants and transplants were freshly enucleated ones from patients admitted specifically for removal of eyes for cosmetic reasons. All such eyes were known to have been free of inflammation for several years.

It was our experience that the eyes removed for certain indications from patients admitted to hospital provided good donor vitreous. The vitreous in each case was cultured, in some before operation and in others after implantation. Some specimens were kept for three months at the end of which culture studies proved negative. The vitreous from these donor eyes were clear and viscid although the consistency perhaps was not the same as

because the mere process of subjecting the vitreous gel to the strain of passing twice through a needle is sufficient to alter the physical state of the gel.

One practical point was stressed in taking the donor vitreous from the excised eye—namely not to point towards the lens. In these pathological eyes the lens is invariably opaque and possibly in the state of Morgagnian cataract. If the needle strikes the lens, milky cortex runs into the syringe and mars the chances of using clear vitreous. This happened once to us and we had to discard the vitreous which was obtained at some price.

None of the cases showed any reaction or infection. No detachment of the retina occurred in the cases treated for vitreous opacities.

My thanks go to Dr. (Miss) D. Mutucumarana for keeping accurate case records and to Dr. W. H. V. Ferdinands, Surgeon-in-Charge, Victoria Memorial Eye Hospital, Colombo for permitting me to make use of the clinical material.

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MULTIPLE SCREENING FOR EYE DISEASES

Hayashida, Belloc and Weissman of Kaiser Foundation Hospital in California gave standard tests for distance and near visual acuity; near, peripheral, and macular vision; colour vision; and intraocular tension, to 2027 persons over 45 years of age. 275 of them were referred for further examination, of whom 119 were found to have conditions other than refractive errors. From the view point of blindness, the only significant disease detected was chronic simple glaucoma, confirmed in 18 cases, only 3 of which had previously been diagnosed.

Tonometry was the most effective method of finding glaucoma. The screening level was set high, at 30 mm. of mercury, and the median age of those examined was 54 years; these factors may account for the low percentage of 0·9 glaucoma cases in this series. The tonometer located 12 of the 15 new cases. Of the other three, two had tensions of 27 mm. and the third a tension of 29·5 mm. Ten of these newly discovered cases were not revealed by any other test. The Harrington-Flocks multiple pattern field-test found only four of the new cases; in all there was definite field loss. The field test is relatively ineffective in detecting early cases of glaucoma.

Macular vision was checked with the Amsler Chart 1, which proved to be rapid and surprisingly efficient in detecting relative and absolute scotomas due to disease of the macula or optic nerve. This test detected all the 10 newly discovered central retinopathies, which were degenerative lesions or scars resulting from old chorio-retinitis or macular hæmorrhage, and were not amenable to treatment.—(*Am. J. Ophthal., 46*: 331, 1959, via *S. S. Review*).

PSYCHOSOMATIC OPHTHALMOLOGY*

E. BALAKRISHNAN, M.B., M.S., D.O.,
Civil Assistant Surgeon, Madras Medical Service, Madras-15

THE eyes are the organs of expression of sorrow, happiness, excitement, beauty etc. In short, the reactions of the individual and the ideas that pass through his mind can be read from his eyes. This is due to the production of hormonal substances which stimulate the autonomic nervous system; changes are produced in the eye, lacrimal gland and lids, whenever an expression is produced. The eyes thus form the seat of expression of the conflicts of the mind.

With the advances in modern medicine and the advent of wonder drugs, infective diseases are largely controlled, and man's life-span has lengthened. But it has created in its wake several difficult problems—problems of degenerative diseases, vascular and metabolic disorders and genetically transmitted diseases. In a search for the causes of these disorders, more and more attention is being paid to the action of the mind on the body, as for instance in diseases like, hypertension, ulcerative colitis, asthma, rheumatoid arthritis and also in our speciality, the glaucomas. To the casual observer of the march of medicine, psychosomatic medicine may seem to be a new branch, that is coming into being during recent years. But it is not so.

Plato said 2000 years ago, "For it is the great error of our day in the treatment of the human body, that the physician separates the soul from the body." Psychosomatic medicine or its branch psychosomatic ophthalmology is therefore, as old as man himself. It was born when primitive man was in constant fear of animals in the jungle, when he had to face prolonged starvation and had to live also in dread of evil spirits.

With the progress of civilization, and with the help of science man has learned to conquer nature and today we live in an era of interplanetary travel. During the eternal struggle for a better life and increased physical comforts, and the impact of the so-called greater civilization and the consequent stress, strain and excitement, the mind of man is being sadly neglected. After the excitement is over and when calmness is restored, new problems arise which still baffle solution by the modern man. The study of the mind has been re-started and has come to be known as psychosomatic medicine, just as old fashions return in a modified form.

It is becoming increasingly common to regard man as an individual, whose physical and mental make-ups are inexorably fixed, so that they function independently of each other, in such a way that complete efficiency or health is possible only if both

*Specially contributed to the ANTISEPTIC.

the sides work in perfect unison. In general medicine, emotional upsets and psychic disturbances produce bodily symptoms. We are all familiar with diseases like Dacosta's syndrome of the heart. It is common knowledge that dyspnœa and hyperpnœa can be caused by emotional tension. We know about neurogenic dyspepsia, diarrhœa and cyclical vomiting. With regard to the genitourinary system, symptoms like frequency or urgency of micturition, dysmenorrhœa and some forms of impotence are fairly common.

Similarly in ophthalmic practice, we frequently come across diseases which are linked up with psychological upsets and emotional tensions. These may be of two kinds :—Though his ocular apparatus is normal, a person may present with symptoms and changes in the eye due to psychological disturbances, caused by environmental factors and familial circumstances which may alter even the personality of the person ; then there are organic diseases of the ocular apparatus which have made the patient blind, or brought him to the verge of blindness or which he knows would eventually lead him to it ; these naturally upset the mental balance of the individual. Both groups of diseases require careful attention and treatment.

Group I :—It is necessary to recognize such patients first, so that no wrong medical treatment is given and no unnecessary operation undertaken. *For example*, the patient with hysterical ptosis, if not promptly recognized, may be subjected to an operation for ptosis which will only add to his existing trouble ; similarly a muscle operation may be done for a functional squint. I wish to emphasize the risks and evil consequences of hastily labelling a case as functional without making proper and adequate investigations.

Sometime ago, when I was on general duty in a mofussil hospital I was called in to see a case which was dying in the ward and was admitted for hysterical fits. Investigations by the attending physician, showed nothing abnormal ; so it was labelled 'hysterical.' It was a very painful sight for all of us when the patient expired. In our own speciality, I remember a case of chronic headache in a mofussil town. Glasses were frequently changed, the X-ray looked normal and the patient was labelled as "functional." She died of tubercular meningitis.

In our enthusiasm to recognize psychic influences, we should not neglect organic disease. It is necessary to go into the personal history of each patient and investigate his case thoroughly, before concluding that it is 'functional' in origin.

In day-to-day ophthalmic practice, the most common complaint met with, is headache due to various causes. From serious intracranial tumours down to minor refractive errors, cases of sinusitis, hypertension, ill-fitting glasses and tight frames, hysteria among women in unhappy homes, truancy amongst students and above all the desire in young women to

look pretty and stylish, with gold-rimmed spectacles on, all of these present with the complaint of headache ! It is easy to feign headache as it cannot be measured or tangibly felt by the doctor who must believe the sufferer. The ophthalmologist has to be very careful before he labels the cause of any headache.

Functional headache has no periodicity and is often supposed to come on suddenly and disappear equally suddenly ; and it starts regularly whenever the patient is called upon to do work which he wants to evade. Some patients feign successfully and present features characteristic of real headache. The posture assumed is usually a head bent-down and the temples pressed with their hands. If you observe them for sometime and make them feel that you believe what they say, their posture promptly changes, their assumed seriousness disappears, and they look somewhat happy. In all these cases, a thorough ophthalmological investigation should be done, as also a retinoscopy after an appropriate cycloplegic, quantitative perimetry, fundoscopy and an X-ray of the skull. Vascular diseases and constitutional disorders must be excluded. If these investigations reveal no abnormality, the patient should be encouraged to talk about himself and his family affairs and the work on which he is normally engaged. With a sympathetic understanding and by taking the patient into our confidence we may be able to trace the emotional factor underlying his head-ache.

Certain characteristics of functional headache are : (1) The site of the headache will vary in subsequent examinations, the patient either forgets the former site of complaint or will state that there is no constancy of site as it varies daily and even from hour to hour. (2) Usually these headaches are always combined with body-ache and chest pain. Sometimes the patient will complain of an one-sided headache with severe pain in the corresponding half of the body.

The other symptom usually complained of by a psychic patient is *defective vision*. This may be gross defective vision or only a minor one. This subjective symptom cannot be elicited without the patient's co-operation. Often the patients will deny even the perception of light but their pupils will react to light briskly and the fundus appear quite normal. It is important to exclude cortical blindness in these cases. Cortical blindness usually results from an injury to the cortical area or from a vascular disorder. If it is due to the latter there may be other associated disorders of conjugate movements of the eye or speech or motor area. A really blind person will have a vacant look and the eyes will have searching movements to no purpose. But a patient with functional blindness will walk with his gaze fixed down on the ground, and he will carefully avoid meeting your eyes, lest his facial

expression should betray his assumed blindness. Usually after some placebo injections into the lids, these patients recover full vision, but only to develop soon some other feigned complaint, like stiffness of the elbow or tremors of the hand or a monoplegia. The history of the so-called recovery of vision is as sudden as it was lost.

I remember the case of a nun whose vision was never more than 6/36 and who was given, after due investigation, a course of ACTH, with no improvement. She was referred to the psychiatric clinic. After her first visit, she refused to go stating that she was not a mental patient. She was shown a lot of sympathy and was slowly persuaded to attend the clinic. At midnight of that very day, she got a flash and noted that she could see well. Her vision was 6/6. The usual story of recovery of vision is sudden, preceded by some sudden flash of light or the passing away of a cloud of darkness. A Muslim patient who had suffered a heavy business loss and who was troubled by having two wives, attended the Stanley Hospital with a complaint of tremors of the right hand. He was cured by suitable oral and parenteral therapy but he suddenly lost his sight for distant objects. He was however, able to write and read the smallest type. During day time, he used to grope on the road and had to be helped by sympathetic friends. One day on entering his house he knocked his head against a pillar and was stated to be unconscious for a few minutes. On recovery he had a return of his full normal vision, and could read 6/6. Such patients usually lose their vision suddenly in crowded places like railway compartments, bus-stops or houses when surrounded by relatives. I remember the case of a typist, about to be retrenched from service who got into a railway compartment at the Beach railway station and lost his sight before he got down at Nungambakkam, with only four stations in between, and he had to be led home by friends who travelled with him.

So in diagnosing the functional loss of vision, the history of the patient is very important. An unbiassed observation of the patient for a sufficient time is equally important, during which his movements in the dark room and in the wards have to be carefully watched without his knowing that he is being watched. Pupillary reaction and fundus examination with fields if possible are deciding factors.

Defective *night vision* is a complaint which an ophthalmologist has sometimes to deal with. A thorough examination of the fundus and a systemic examination to exclude liver disorders and Vitamin A deficiency must be carried out. Measurements in the dark may be made by the dark adaptometer. The minimum light-sense and form-sense can be obtained. The disparity in the usual ratio of light minimum and form-sense will diagnose functional complaints of defective night vision. An electroretinogram will reveal early cases of retinitis pigmentosa before pigmentary disturbance is evident.

Field changes in the case of the psychic individual is an important diagnostic aid. Central fields for various sizes of objects should be charted. If there is an organic lesion, the field for 1/1000 object will not be larger in any meridian than the field for 3/1000 object of the same colour. This is not necessarily

the case if the contraction of the field is psychogenic. This may be bigger than 3 *mil* object. This is called "Examining the inner consistency of parts of the symptom complex."

In certain cases the peripheral field will go on contracting, to what is called the spiral field, until the patient declares that he does not see anything except the fixation point. But when asked to go out, he will comfortably walk out without injuring himself.

In such cases the ophthalmologist must find out whether the particular lesion can produce such defective vision, by correlating the lesion with the symptoms of the patient. For example a patient, may complain of loss of vision, say, up to one metre. He may have slight lenticular opacity which cannot account for his gross loss of vision. This is what is called 'lesion-symptom correlation.' We should see whether this 'lesion-symptom-correlation is present in each patient who is examined for organic diseases; the lesion-symptom correlation will be absent in functional patients.

Another method of examining the field is taking the central field for a particular visual angle and comparing that field for the same visual angle in the peripheral field. For example, 1 mm. object at perimeter at 330 mm. will have the same field for 6 mm. object on Bjerrum screen at 2 metres distance. But in psychic patients these fields will not be equal.

Functional patients may complain of diplopia. It may vary from a momentary slight separation into two images to constant well-defined double vision. To investigate the possibility of an organic origin, the usual tests for muscle paresis, muscle spasm, convergence weakness, concomitant squint and muscle imbalance should be carried out.

Asthenopia or ocular fatigue is another complaint. In many cases there is a small refractive error which however, under other circumstances may not be expected to cause any symptoms. Whether spectacles should be prescribed for a particular case, would depend on the experience of the specialist.

In this connection I would recall the case of a patient who walked into the refraction room for a prescription because his glasses were broken. He stated that he was suffering from severe headache for which a pair of glasses was prescribed by an eye-specialist, and he felt relieved. Now that it was broken, came to have his eyes retested. A retinoscopy, fundoscopy, and fields were done which were all normal. He was told that he had no refractive error. But he asserted that he was wearing glasses and it relieved the headache. He was told to bring his broken glasses for inspection; they were found to be plane glasses!

Some patients may complain of photophobia and epiphora.

I remember the case of a lady graduate whose parents could not get her married, owing to financial difficulties, and who developed intense photophobia and watering in one eye. She was always squeezing the lids of one eye, and

there was conjunctival congestion; all investigations were negative and she had treatment for months on end at the outpatient clinic. To keep herself engaged, she was advised to join the teaching profession when most of her complaints were relieved and after she luckily got married all her complaints vanished.

Ptosis and tic spasm are often due to functional causes. We all know that miner's nystagmus affects miners who are in the pits for a number of years and disappears when they go on long leave; but it returns when they get back to the pits.

It is well known that acute glaucoma affects the sensitive and excitable individual. Whether glaucoma is the result of psychological upsets or whether one gets upset when he comes to know that he is suffering from glaucoma is not clearly known. One of the many theories of the causation of glaucoma is psychic upset which stimulates the parasympathetic system. But the last word is yet to be said on this problem.

Group II:—Patients who have organic disease of the eye-ball and who develop psychological disturbances due to their ailment should be told that if they develop the will-power to live happily they will find happiness and even a chance to serve others even when blind. This philosophy is not easily attainable.

At the beginning of the last century, Caleb Parry, who described Grave's Disease before Grave did and had recognized Hirsprung Disease before Hirsprung was born, wrote "It is more important to know what sort of patient the disease has, than what sort of disease the patient has." It is common experience that ego-centred, neurotic, selfish individuals suffer more when they are blind than those who are cultured, generous and high-minded. All of them however, require equal attention from the ophthalmologist.

A clinician is trained to seize an abnormal physical sign with almost a feeling of relief. A spot, a lump, or a sound—an abnormality which can be seen, felt or heard affords the same satisfaction to him as a success in sports or games. The pitch has been marked out and the rules are known, the line-men are the technical colleagues in the laboratory or X-ray room and the referee is the morbid pathologist. In the excitement of playing the game, let us not forget that the patient has a mind too which requires your attention sympathy and treatment. It has been said jocularly by our colleagues in other branches that the eye-specialists have tubular vision. We certainly look at the eye and into the eye, but let us say we have the capacity to look far beyond the eyes and it is our responsibility to look into the mind, lest an unnecessary puncture or a needless operation is made.

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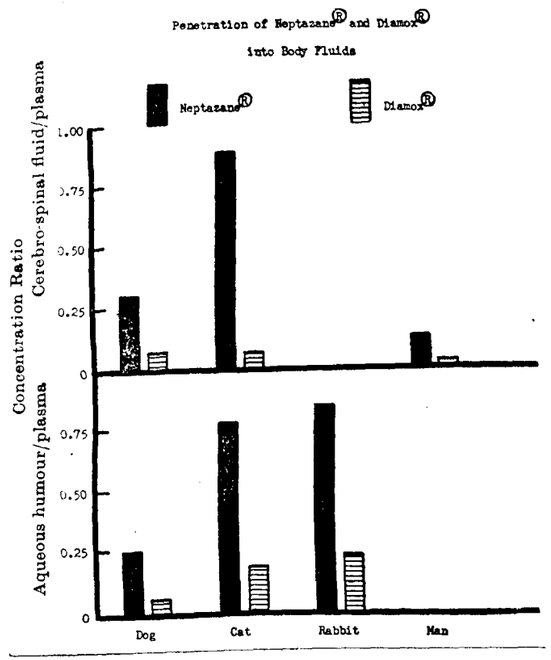
NEPTAZANE IN OPHTHALMOLOGY*

J. M. PAHWA, M.B., B.S. (Pb.), D.O. (Pb.), Z.O. (Vienna), M.S. (Luck.),
Eye Hospital, Sitapur

NEPTAZANE (Lederle) is a carbonic anhydrase inhibitor, related to and claimed to be more potent than Diamox, and to be absorbed almost completely from the gastro-intestinal tract and to be fairly quickly so that the maximum concentration in the plasma is reached nearly 3 to 5 hours after administration but excretion through the kidneys on the other hand is nearly 4 to 8 times slower than that of Diamox. It can also penetrate into the cerebro-spinal fluid and aqueous humour, in rather higher concentration than Diamox. (*See* chart below). Its actions of causing diuresis and a fall in intra-ocular pressure are also through involvement of HCO_3 and a resultant metabolic acidosis.

CHART 1



Like Diamox its hypotensive effect is attributable to the decreased formation of aqueous, which has been confirmed by tonography when there was a little change in the outflow mechanism. Pupil-diameter and pulse-rate were unaffected while there was a very slight fall of blood-pressure 4 to 10 mm. systolic and 2 to 6 mm. diastolic.

DOSAGE :— The effective dose of Neptazane in glaucoma was 100 mg. three times a day or occasionally twice daily. Little benefit if any was obtained with dosages above or below this. It is suggested that the tablets may preferably be supplied in 100 mg. concentration instead of 50 mg. In order to evaluate the relative therapeutic efficacy of Neptazane 100 mg. and

*Specially contributed to the ANTISEPTIC.

Diamox 500 mg., both drugs were administered on separate occasions to five patients (2 with congestive and 3 with simple glaucoma). It was noticed that Neptazane decreased the intra-ocular pressure nearly 1½ hours after the administration of the drug reaching its maximum in 4 to 10 hours after which the tension again increased gradually reaching its pre-treatment level after 22 hours. On the other hand, Diamox lowered the pressure within 40 minutes reaching its maximum in nearly 3 to 6 hours and returned to the pre-treatment level in 18 hours. The decrease in ocular tension was slightly more with Diamox in acute congestive glaucoma but nearly the same in simple glaucoma; the action was thus found to be prolonged with Neptazane.

Clinical material.—The drug was tried in 49 cases with different eye-conditions as under:—

TABLE I

1.	Acute congestive glaucoma	... 9	cases
2.	Chronic congestive glaucoma	... 6	,,
3.	Simple primary glaucoma	... 11	,,
4.	Secondary glaucoma, including one thrombotic and one post-operative aphakic glaucoma	... 7	,,
5.	Buphthalmos	... 1	,,
6.	Absolute glaucoma	... 3	,,
7.	Before cataract extraction in cases with tendency to rise of tension	... 4	,,
8.	Central serous retinopathy	... 1	,,
9.	After corneal grafting	... 2	,,
10.	Non-formation of anterior chamber	... 5	,,
	Total	... 49	cases.

Acute congestive glaucoma.—Nine were treated, 6 males and 3 females. When local drops of miotics were used, the action was quicker and the tension reduced was greater (100 mg. *t.d.s.*). It appeared to be most effective in controlling ocular tension in cases of recent onset and in subacute and chronic congestive narrow angle glaucoma in which a fair amount of vision was present. The effect was optimum in the first 3 days of therapy, so that surgery could be undertaken more safely later on. Neptazane is less effective in near absolute or absolute glaucoma.

In two cases of acute congestive glaucoma, the tension could not be brought down quickly, so Diamox was used with miraculous immediate effect. One patient, a doctor already used to Diamox whenever he got acute or subacute attacks, prefers to stick to Diamox, as he feels that its action is superior and quicker. The onset of the decline in ocular tension is somewhat retarded with Neptazane but on the other hand its hypotensive effect is slightly more prolonged. I wonder if these two can be

used together to achieve better, quicker and complementary effect. Two patients who had to discontinue Diamox because of side-effects, like gastro-intestinal upset and numbness were successfully treated with Neptazane for 3 to 4 days after which surgery was undertaken with more safety.

Chronic congestive glaucoma.—Neptazane was tried in six patients which included two cases where Diamox had to be discontinued because of side-effects. One of these had previously been operated for glaucoma (iridenclesis) but the tension was slightly higher; so he was put on Neptazane 100 mg. twice daily for 3 days and then once daily, along with the miotics. That case was controlled needing no further surgical intervention. Another case did not respond to Neptazane and so was put on Diamox, but as the response to this was also rather poor, surgery was resorted to.

Simple primary glaucoma.—The drug was used in 11 cases, in four of which, more than 2 or 3 operations had already been performed. As already stated, the drug was not effective in 2 nearly absolute glaucoma cases. In others the tension was controlled along with miotics. As the effect of the drug is prolonged so its use is recommeded as a long term therapy in such cases. A word of *caution*: these patients should be checked up every 2 months by detailed examination, as the tension may be rising at odd hours. One of these patients is still under Neptazane (1 tab. of 50 mg. daily).

Secondary glaucomas.—It is again of undoubted value. A case of secondary aphakic glaucoma in an only eye which developed iritis etc., was considered almost lost because Diamox did not have any effect; but it responded very well to Neptazane 2 tablets twice a day for 10 days and then two tablets daily for 5 days (a total of 50 tablets). The tension came down, redness etc. disappeared and the patient has 6/12 vision. Similarly a case of hypopyon ulcer with secondary glaucoma and another of exudative iritis responded very well to Neptazane when used along with local treatment for iritis and corneal ulcer etc. Neptazane did not prove useful in a case of thrombotic glaucoma and in a buphthalmic child. In intumescent cataracts and cataracts with a tendency to a rise in tension, Neptazane given for 3 days before cataract surgery rendered the operation safe and enabled us to undertake intracapsular extraction. In these cases it is advisable to continue the drug for atleast 2 days after the operation. In a severe case of central serous retinopathy it was given along with vasodilators etc. with no appreciable relief and the patient could not tolerate more than 12 tablets, as he got severe depression and giddiness etc.

Neptazane was used in two cases of corneal grafting after the operation, in order to help in the formation of the anterior

chamber, to prevent non-inflammatory œdema and to achieve a better coaptation of the wound. In one patient 47 tablets were used without any side-effects.

It was used also in 5 cases of nonformation of the anterior chamber after cataract operation. The drug was used only when the chamber had not formed for 7 or 8 days. One of these patients was operated under *Alphachymotrypsin* and three of these had detachment of choroid also. Out of these 5 patients the chamber did not form in three cases, while the other two patients responded favourably. These three patients were then put on Diamox which proved useful in 2 cases while the one case operated under Alphachymotrypsin did not respond to either.

Side-effects of Neptazane.—The side effects exhibited by the patients receiving Neptazane are much less and to some extent different from those caused by Diamox. Symptoms of malaise, depression and fatigue are more marked while disturbances of the gastrointestinal system are less so. No cases of hæmorrhage or with symptoms referable to the genito-urinary system or skin have been met with in our series. One of the patients got a tingling sensation in the extremities. Out of 49 cases, only in two cases had the drug to be discontinued: one because of the depression etc., and the other due to persistent diarrhœa. In 6 patients where Diamox was not tolerated, 5 responded very well to Neptazane while one patient did not tolerate either.

In diabetes, kidney diseases and hepatic cirrhosis, the drug, if at all necessary, should be used with caution.

Summary and Conclusions.—1. The observed effects of carbonic-anhydrase inhibitors on intraocular pressure indicate that Neptazane is two to three times more active than an equal quantity of Diamox.

2. The action of Neptazane is somewhat slow or/and more retarded but is definitely more prolonged, than that of Diamox, so the former is more useful as long term therapy in simple glaucoma cases.

3. In acute congestive glaucoma however it is less efficacious than Diamoz which is more useful in reducing immediate tension. If possible, the two may be combined in such cases.

4. The effective therapeutic dosage assessed is 100 mg. three times a day in acute and twice daily in chronic glaucoma cases.

5. In secondary glaucoma it is very useful. A case of secondary post-operative glaucoma (only eye) was saved by this drug.

6. It is less effective than Diamox in cases of non-formation of the anterior chamber.

7. The side-effects of Neptazane are fewer and less severe than Diamox and so it is better tolerated. Fewer gastro-intestinal complaints occurred with the use of Neptazane.

I am thankful to M/s. Lederle Laboratories (Private India Limited) particularly Dr. Britto and Dr. Ottati for their co-operation and generous supply of Neptazane.

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VISION AND CONTACT LENSES*

DEVENDRA KUMAR,
Diplomate in Ophthalmic Optics: (Northampton Poly), F.B.O.A. (Lond.),
Head of the Contact Lens Department, Gandhi Eye Hospital, Aligarh

THE principle of contact lenses were first described by Leonardo da Vinci in 1508. Lenses were then intended to be used as protective shells only. It was not envisaged that they could ever be used as optical aids, though Sir Fredrick William Herschel[2] (1827) did suggest such a possibility. The first protective shell was fitted by F. E. Muller of Wiesbaden (1887) to a patient who had already lost one eye, and there was the danger of the other eye also being lost due to exposure.

Dr. Eugen Fick is credited to have been the first to attempt at visual improvement by contact lenses. He was amazed at the improvement in vision in cases of keratoconus and so suggested their use in conical cornea, irregular astigmatism and high refractive errors. He however, failed to achieve useful periods of tolerance. August Muller of Germany tried to correct his own myopia of some fifteen dioptres, with contact lenses made to his own specification, but failed to tolerate them in the eye even for a few minutes. He took moulds of living eyes and declared that his method of taking them was quite safe. E. Kalt in 1889, fitted a number of his keratoconus patients with contact lenses successfully. Three years later, Dr. D. Sulzer of Geneva reported success in fitting three cases with contact lenses. One of his three cases was suffering from high myopia, astigmatism and the other two had conical cornea. Thereafter nothing much was heard of contact lenses as the very idea was considered fanciful by most people at that time.

Dr. Joseph Dallos (1932) of Budapest began his experiments in taking impressions of the living eyes using Negacoll. He succeeded in reproducing the impression in glass shell. Later, he also developed the technique of carrying out modifications on the glass shell, which ensured a better fit. He is also accredited to have been the designer of the reduced optic for incorporation of high powers in the lenses reducing the weight at the same time.

The year 1936 witnessed the introduction of contact lenses made by Zeiss of a special chemically-resistant glass. A year later Feinbloom produced glass plastic contact lenses. In these lenses glass optic was set in plastic haptic. Within a year of this development, Obrig (U.S.A.) announced his success on producing all-plastic contact lenses. By 1940, Obrig had put on the market perfected all-plastic contact lenses. There were still however, many difficulties in fitting the contact lenses. Patients were not able to tolerate these lenses for long periods. Mr. Norman

*Specially contributed to the ANTISEPTIC.

Bier[3] (1945) offered a solution to many of these problems with his fenestrated lenses.

The year 1948 ushered in a new era, in the long history of contact lenses, with the introduction of corneal lenses by Kelvin M. Tuohy. Herr. Sohnges (1953) reported fitting corneal lenses of 9·5 mm. diameter which was contrary to the practice of fitting conventional corneal lenses of varying diameter *i.e.*, 10·4 mm. to 11·5 mm. These lenses were later named micro-corneal-lenses.

Last year a communication was received from Messrs. Plastic Contact Lens Company of Chicago announcing their success in fitting bifocal corneal lenses (*Bicon*).

I. Indications for the use of contact lenses.—(*a*) Contact lenses make possible a perfect optical correction with minimum departure from the optical conditions of the emmetropic eye. Contact lenses are worn in contact with the eyeball and the refractive index of the plastic used is nearly the same as that of the cornea and aqueous. The position of the cardinal points of the eye's optical system are thus not affected to any marked degree. Therefore, the size of the retinal image formed is the same as in the emmetropic eye, except in high refractive errors; (*b*) contact lenses are indicated in cases of conical cornea, irregular astigmatism and in certain cases of corneal scars; (*c*) in anisometropia, where the difference in refraction between the two eyes is more than three dioptres.

II. Protective.—Contact lenses are valuable in providing protection to the cornea in cases of entropion, trichiasis, and in sequelæ of trachoma thus eliminating the rubbing of the lids against the cornea. They have also been used as a splint following injury to lids and for the retention of the medicament. Tinted lenses can be used in cases of marked photophobia.

III. Cosmetic.—In cases of albinism, aniridia and other abnormalities of the irides, contact lenses are employed to simulate normal appearance and to restore visual functioning.

Reports on cases.—CASE 1:—C. 106. Mr. M. of Halgronoya (Ceylon), age 29, had conical cornea of both eyes. *Slit-lamp* examination showed central corneal opacities. The fundus was normal; *Unaided vision*:—R. E. Hand movements. ½ m. and L. E. Finger counting 1 m.; *Vision with spectacles*:—Showed no improvement. *Vision with contact lenses*:—R. E. *plus* 1·50 D 6/24; L. E. *plus* 1·75 D 6/9p.

Using both eyes for near vision he could read J. 2. The cone of the right cornea was much more advanced than the left cornea.

He was fitted with the minimum clearance haptic fluid lenses. A solution of 1% Soda-bicarb was advised to be used with the lenses. The lenses were given to him in the first week of July 1959; he stayed for three days more after getting the lenses. Within this short period of three days he developed a wearing time of three hours twice a day.

CASE 2:—B. 107. Mr. K. D. of Delhi, age 21, had conical cornea of both eyes. *Slit lamp* examination showed a network of fine opacities at the apex of

the cornea in both eyes; the fundus was normal. *Unaided vision*:—R.E. 1/60 L.E. 2/60; *Vision with spectacles*:—Showed no improvement. *Vision with contact lenses*:—R.E. *plus* 1·25 D 6/12; L.E. *plus* 3·25 D 6/9.

Using both eyes he could read J. 2. He was given minimum clearance haptic-fluid lenses and was advised to use 1·5% Soda-bicarb solution as 1% did not suit him. The lenses were given to him in December 1958. In March 1959 he reported for a check-up as he was experiencing some trouble in vision on account of mistiness of the lens surface. On examination the optical portion of the lenses were found to be covered with a fine network of scratches. A detailed examination revealed that the scratches were caused by some chemical reaction of the ocular secretions. On questioning the patient it was revealed that after removal of the lenses from the eyes he never washed them before putting them away. The lenses were replaced by a new pair as the scratches could not be polished out. The new pair which was given in March 1959 were optically perfect. He has not reported any trouble with this pair of lenses so far. This has confirmed our previous assumption that those scratches on the surface of the optics were caused by ocular secretions depositing there.

CASE 3:—B. 75. Mr. B. S. S. of Atrauli (Aligarh), age 29, had myopia (anisometropia): the fundus was tessellated, foveal reflex dull, myopic crescent *Unaided vision*:—R.E. 2/60; L.E. 3/60. *Corrected vision with spectacle lenses*:—R.E. 7·00 sph. with –1·00 cyl. axis 15 6/18; L.E. –4·00 sph. with –1·50 cyl. axis 20 6/18.

Vision with contact lenses: R.E. –5·00 sph. 6/9; L.E. –3·50 sph. 6/9. He was fitted with fenestrated haptic-contact-lenses in August 1958. He reported back in September 1958 complaining of the formation of small bubbles interfering with his vision. The formation of these bubbles started after one hour in the right eye and thirty minutes after in the left eye. After a few adjustments the lenses were given to him again. Two months later, he reported less frothing which occurred after the lenses were worn for 4 or 5 hours. But sometimes on moving his eyes sideways there was a momentary acute pain. Fluorescein test revealed a transitory apical touch which was eliminated. Lenses were very comfortable but the frothing set in immediately on the insertion of the lenses. For the sake of clinical interest the patient was fitted with a pair of haptic fluid lenses. These lenses he could use for six to seven hours a day. However, after such prolonged use of the lenses he complained of tired eyes. The patient desired fenestrated lenses. He was given a new pair of slightly modified specifications. He has been advised, however, to use a slight coating of castor oil on the inner surface of the haptic portion of the lens. He is quite comfortable now.

CASE 4:—C. 15. Mr. A. R. S. of Aligarh, age 36, both eyes were aphakic. Cornea and other media were clear; fundus was normal. *Unaided vision*:–Both eyes 2/60. *Corrected vision with spectacles*:—R.E. *plus* 11·50 sph. with *plus* 1·00 cyl. axis 25. 6/6; L.E. *plus* 12·00 sph. with *plus* 2·00 cyl. axis 125, 6/6; he felt very uncomfortable with spectacles and was unable to take part in any outdoor games. *Vision with contact lenses*:—R.E. *plus* 18·00 sph. 6/6; L.E. *plus* 18·50 sph. 6/6. He reported for a check-up after a month. Necessary slight adjustments were done. He could then wear the lenses all day but on account of glare he was unable to do so. He was advised to use tinted lenses to avoid discomfort due to the glare.

CASE 5:—Mr. L.G.T. of Jhansi, age 24: *Unaided vision*:—R.E. 6/6; L.E. 1/6, L.E. aphakia. (The eye had been injured at the age of thirteen years. Following injury he developed cataract and divergent squint). He was operated for the cataract and the squint was corrected. *Corrected vision with spectacles*:–R.E. plano 6/6; L.E. *plus* 11·00 sph. 6/12. (With spectacles he complained of marked diplopia). He was not able to tolerate the spectacles on account of

headache and discomfort caused by the diplopia. He was fitted with a compact-lens only in the left eye. *Vision with contact lens* in left eye *plus* 16·00 sph. 6 12. (With the contact lens he experienced slight diplopia but could fuse the two images on making a slight effort). Lenses were given to him in March 1958. After using the lenses for two months and doing some orthoptic exercises set for him, the diplopia disappeared completely. Now he is using the lenses comfortably for six to seven hours a day.

Discussion.—The indications, uses and limitations, of contact lenses have been discussed. Contact lenses are certainly valuable in the type of cases discussed in this paper.

The impairment of vision in cases of conical cornea was due to irregular refraction of the incident rays on account of irregular surface of the cornea. By the application of the contact-lens to the eye, a fluid lens is formed between the anterior surface of the cornea and the posterior surface of the contact lens, which fills up all the irregularities of the corneal curvature. With the contact-lenses in position, a modified optical system is obtained with the anterior surface of the lens acting as the anterior surface of the cornea thus refracting the incident light in a regular manner. This in turn forms a proper retinal image restoring the resolving power of the eye. In very advanced cases of conical cornea, contact-lenses are of little value and in such cases keratoplasty would appear to be indicated. But even after the keratoplasty contact lenses would have to be used to neutralize the irregularities of the cornea which result from such operation.

In high myopes, contact-lenses are advantageous over spectacles forming enlarged retinal image. Increase in vision may be as high as 25% in myopia of 20·00 D. People with high refractive errors feel more at ease with contact lenses than with spectacles:—(1) as there is an absence of aberrations which are present in spectacle lenses *i.e.*, spherical, chromatic, astigmatic and distortion while looking through the periphery of the lens; (2) as there is also an absence of prismatic effect which is introduced in spectacle lenses on looking through the periphery of the spectacle lens; (3) as there is no restriction in the field of vision as there are no rims or nosepieces present; and (4) also because of appearance of the objects in their original size irrespective of the refractive error.

Contact-lenses are definitely of value in anisometropes. Spectacles in these cases produce headache, nausea, and discomfort due to diplopia, which are dispensed with by the use of contact lenses. In cases of monocular aphakia contact-lenses are the treatment of choice.

Contact-lenses, however, also have their limitations. They cannot be prescribed indiscriminately. Every patient has to be thoroughly examined before he can be accepted for contact-lenses. Persons having tight lids, bulging or very deep set eyes

may not be considered to be very good cases for contact-lenses. Contact-lenses are not ideal for those who dislike the idea of wearing anything foreign over their eyeball and for those of a nervous disposition.

In a few cases any amount of effort is of no avail in overcoming veiling, although the lenses are fitting perfectly optically and physically. This problem does not exist in fenestrated lenses. But even so, we sometimes come up against a solitary case of frothing (similar to veiling) where little can be done. Last but not least the limitation is the high cost of lenses.

Summary.—A brief historical survey is given of contact-lenses and their conception in clinical practice.

Cases indicating the beneficial uses of contact-lenses in clinical cornea, high myopia, high refractive errors and in anisometropia have been described.

It has been pointed out that contact-lenses have their limitations and cannot be used indiscriminately. It is hoped that this article will help to dispel certain notions about the use and abuse of contact lenses.

Acknowledgement.—I am grateful to the Chief Medical Officer, Gandhi Eye Hospital, for according permission to publish this paper.

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PILONIDAL SINUS

Congenital lesions of the sacrococcygeal area in the midline, popularly called pilonidal cysts and sinuses, have been a problem to physicians and surgeons for many years. These lesions are commonly found in families, father and son or brothers. Males far exceed females. Age incidence is 16 to 26 years of age. Symptoms are rare in infancy and seldom occur before 17 years of age. The average age is 20–24 years. Difficulty is usually related to trauma to the area by the patient, and in fact is often the initiating factor. Pain in the sacrococcygeal area is the major symptom, occurring first in about 84 per cent of cases. The pain is usually of a mild, gnawing character, which comes and goes, and it is aggravated by walking, sitting, or lifting. A discharge is present in approximately 78 per cent of cases, which may be watery or colourless, but most often purulent in character. Occasionally the patient is troubled with pruritus ani. In females the pain is often worse during the menses, probably from sanitary belt irritation. The disease is characterized by exacerbations and a considerable interval may lapse from occurrence of symptoms to treatment. Of Kooistra's 350 cases, an average of 38 months elapsed before the patient sought treatment.

The surgical treatment of this condition has been the most extensively used and the most successful. Buie developed the exteriorization or marsupialization operation which has been extensively used after the war. He opens and drains the cyst but rather than remove it entirely, he sutures the base of the cyst to the adjacent skin. Earlier healing and a high-cure rate have been claimed for this procedure. The control of infection is

of paramount importance. Blackwell and Rittelmeyer of the Tulane medical faculty examined 1470 individuals visually for evidence of sacrococcygeal lesions. One thousand and eleven male adolescents, ranging from 10 to 17 years of age, revealed a total incidence of sacrococcygeal lesions of 6·13 per cent, of which 1·58 per cent were pilonidal lesions. Four hundred and fifty-nine male infants were examined in a similar manner yielding a total of 5·9 per cent sacrococcygeal lesions. 1·83 per cent of which were pilonidal sinuses.

Of the 1,407 individuals examined, a total incidence of 6·10 per cent sacrococcygeal lesions were found. Of these 1·60 per cent were pilonidal sinuses.—(*Bull. Tulane. Med. Faculty,* Aug. 1959).

EFFECTS OF ATOMIC FLASH

An atomic flash over 35 miles away may cause two separate eye conditions: flash blindness lasting about half an hour and chorioretinal burns, which leave permanent scotomata. In an article in *The Journal of the American Medical Association* of October 11, 1958, Victor A. Byrnes, M.D., discussed the bearing of these hazards on civil defence. Dr. Byrnes is director of professional services in the Office of the Surgeon General.

The blink reflex is not fast enough to protect the eye from either hazard, but with adequate warning civil defence personnel can patch at least one eye if the other is needed for observation.

Flash blindness is due to the bleaching of the retinal photosensitive chemicals by bright light. The eyes are temporarily incapacitated in darkness, but much less so in daylight. Effective filters to prevent flash blindness usually prevent the individual from doing anything useful. Defence personnel may therefore protect one eye for seeing during the emergency, while the blinded eye recovers.

Related chorioretinal burns are caused by the lens system of the eye forming an image to the fireball on the retina. The visible and near infrared light (400-1,250 millimicrons) energy is absorbed by the retinal and choroidal pigment. Pupillary size is an important factor in the seriousness of the burn, so that this is more of a night than a daytime hazard. Unless the image of the fireball is formed on the macular area the permanent effect will be binocular scotomata in the peripheral field which do not seriously impair vision. If macular vision may be reduced to 20/200 (peripheral acuity). This lesion can occur outside the danger zone of any other atomic effect, except fall-out. It is not painful, and requires on emergency treatment.

Civil defence personnel should be trained to understand these effects, and thus prevent panic.—(*S. S. Review*, 29-1-1959).

SIGHT DAMAGE

Ophthalmic Surgeon, L. H. Lake of Royal Victoria, Infirmary, Newcastle, warns against the dangers of smoking. This popular indulgence, he says, causes inflammation of the optic nerve behind the eye-ball. "The usual symptom is that of a gradual blurring of vision and a loss of colour perception—particularly for red and green. Difficulty in reading small print is evident and this is not improved by the use of stronger glasses. This gradually increases until even the headlines of news-papers become indistinct!"

RAMBLING THOUGHTS OF A MOFUSSIL OPHTHALMOLOGIST*

D. SUNDARESWARAN, M.B., B.S., L.O.,

Hony. Ophthalmic Surgeon, Govt. Headquarters Hospital, Coimbatore

OPHTHALMOLOGY as taught and learnt in Colleges differs widely from what it is as seen in daily application and practice. The methods of treatment differ in the city and in the mofussil, as evidenced by the differences in the approach to the problems. Teaching units always stress the importance of ætiology and investigations, while the mofussil institutions start treatment also side by side, and sometimes proceed only with the treatment for want of adequate investigational facilities.

If we take a few diseases and trace the advances in treatment and the impact on them of the new blunderbuss therapy with sulphonamides, antibiotics, and corticosteroids, it will be clear that the pattern of disease has greatly changed during the last two decades.

Conjunctivitis in the allergic form is on the increase, because people are getting sensitized to sulpha-drugs, penicillin and other antibiotics, and also because allergies are on the increase. Consequent on the great expansion of various industries, mills and factories, the atmosphere gets greatly vitiated nowadays and with the slowly but steadily increasing radioactive fallouts and the leakage of atomic waste, the outlook causes apprehension.

Coal dust, granite, cotton and metal particles, tar and its products, exhaust fumes from automobiles, chemical gases etc. are now abundant in the town and city atmospheres; the normal vitality and power of resistance in humans is decreasing and so we see a great increase in the variety and type of allergies among our people. The eye is no exception.

Acute oedema of the conjunctiva and eyes:—Is quite common after the local application of penicillin drops or ointments. Mercurochrome, Anethaine and sulphonamides have all produced allergy. Under these conditions it is wise to go back to old remedies like zinc, argyrol, plasma and boric ointments.

Phlyctens are on the increase too, and occur at all ages and on all parts of the bulbar conjunctiva. Sometimes these nodules attain a fairly big size and frequently the individuals show a positive Mantoux reaction. Some are associated with helminthiasis. They are resistant to all types of treatment and so excision is often required. Streptomycin locally has been tried and found wanting. Can it be that our resistance is on the wane?

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*Specially contributed to the ANTISEPTIC.

Keratitis is found in quite a number of cases and some are syphilitic, tubercular or leprotic ; there are other different types of keratitis and the treatment is as baffling as ever. Riboflavin by mouth and parenterally, and cortisone and hydrocortisone ; topical, sub-conjunctival and oral have all been tried, extensively. Dionine, sub-conjunctival saline or milk injections and T.A.B. vaccine also have their place.

Spring catarrh is now on the increase and the response to the old remedies like dilute acetic acid drops, and zinc and to the newer remedies like cortisone and hydrocortisone has been variable.

Hypopyon ulcers are a problem. The associated secondary glaucoma leads to loss of vision. Diamox has been of some use. Achromycin has been tried topically and parenterally. Some have improved. Others have progressed from bad to worse and finally lost the eye. Sub-conjunctival penicillin injections, sulphadiazine orally, penicillin application in powder to the ulcers have been tried and when the organism is susceptible to penicillin the results are good but where the organisms are not, other antibiotics suitable for the particular group have to be tried.

The good old iodine cautery, carbolic cautery and Saemisch's section still have a place. The resistance of the individual is all important and it is very much on the wane.

Trachoma is not so common nowadays and the various stages of the disease are less frequently met with. Active antibiotic treatment is obviously responsible for this improved status.

Keratomalacia which is on the increase accounts for the loss of many eyes, when neglected. The association of protein deficiency and helminthiasis is a factor. Being a purely socio-economic problem, the economic progress of the country will alone counter this progressing evil. Keratomalacia is widely prevalent in the new-born, in expectant mothers and mothers in puerperium. The number of new-born children being fed on artificial foods is on the increase, as modern mothers feel they do not have enough breast-milk ! A good number of them are reluctant to breast-feed the children for cosmetic reasons ! They forget that no food can replace breast-milk so far as the mineral contents, nutritive and vitamin values in balanced proportions are concerned.

Headaches are now a regular feature and a big problem. Thus we have to deal with the allergic headache, the vacuum headache, the headache due to errors of refraction, sinus-headache, functional headaches. The average modern girl student with a headache is a perennial problem. What with her general reluctance to take a balanced diet containing plenty of milk and vegetables and with her normal physiological menstruation

appearing in regular cycles, and on top of all this the heavy studies she has to under take, she is left with hardly any resistance, and so falls frequently ill. Even small refractive errors, left uncorrected causes trouble. Therefore, refractive errors deserve prompt attention.

Myopia is on the increase partly due perhaps to better methods of detection and partly to the practice of the modern student sitting up late in the night from 9 or 10 p.m. till 2 or 3 a.m. and reading small and difficult print at close quarters, when the eye muscles get very tired. This causes an increase in myopia. Early morning reading is advised when the mind and the eye muscles are both fresh and active.

Heredity, consanguineous marriages, marriages between two high myopes and near-work are also responsible factors. Doing embroidery work, needle work etc. of a very minute nature, at very close quarters and frequent pregnancies are additional factors particularly in girls and women.

We have no legislation in India to prevent people with retinitis pigmentosa, retinal degeneration, albinism etc., from marrying and spreading these diseases.

Blindness caused by tubercular meningitis being on the increase in children, very early diagnosis is imperative. The child may get cured of the meningitis but is often left blind or an imbecile. Such cases need careful watching and even a few days' fever should alert us to examine the condition of the fundus. "Pale discs, blurred disc-margins and some tortuosity of the vessels should prompt us to do a lumbar puncture in order to diagnose T. B. meningitis."

Optic atrophy.—All grades of this condition are seen almost every day. Owing to the indiscriminate use of penicillin, many cases turn out on investigation to be serum-negative but regular treatment with bismuth, iodides and penicillin later on has produced favourable results. ACTH intravenously every day has given good results and the advocates of this drug are against penicillin administration. Some cases do well on milk and iodine injections and some respond to crude liver extract and Vitamin B Complex injections.

Glaucomas.—These occur in the usual proportion but the varying operative procedures, the uncertainty of good results and the consequent wandering of these patients from place to place have prevented an authentic assay of the problem.

The newer drugs have greatly augmented our armamentarium against various diseases but the organisms are adapting themselves to them and getting resistant. If and when these drugs fail, it is wise to revert to our old remedies.

Steroids and corticosteroids :—These certainly represent an advance in modern therapeutics and have been found to serve

also as anti-inflammatory, anti-exudative and anti-allergic drugs and to help in tiding over certain difficult situations. The indiscriminate use of these drugs in ulcers and healing wounds is to be condemned as epithelialization and fibrous tissue-formation are retarded.

Before I conclude I would like to say a word about 'Eye Camps.' A survey of the work carried out in the numerous 'Eye Camps' would appear to show that there is much to be desired in the proper running of these camps.

I would prefer to do a restricted number of operations well in suitable cases and benefit the patients rather than take up numerous cases under adverse conditions and rush them through at great speed with results of doubtful value.

"Seethalaya," Sarojini Street,
Ramnagar, Coimbatore.

AMBLYOPIA *EX* ANOPSIA: A PRELIMINARY REPORT OF THE MORE RECENT METHODS OF TREATMENT

Mayweg and Massie obtained very encouraging results in treating suppression amblyopia by the Cuppers after-image method. A series of 50 children between the ages of four and 13 were treated at the High Holborn Branch of Moorfields Eye Hospital, London. None of them had responded to occlusion of the fixing eye.

The instruments used—Visuscope, Euthyscope and Coordinator—were designed by C. Cuppers of Giessen, Germany. The first two are modified ophthalmoscopes. The Visuscope is used in diagnosis to indicate the type of fixation. Then the affected eye is occluded for three or four weeks, and when fixation is central or is approaching the fovea, occlusion is switched to the unaffected eye, and pleoptic exercises involving the coordination of hand, eye and brain are given. The Euthyscope projects a circular beam of light on the retina around the macula, which is not illuminated. This produces an after-image corresponding to the area of retina stimulated. The Coordinator, used in the later stages of the treatment, helps restore foveal fixation.

An average of 20 to 30 half-hour treatments was given. In the 12 children with central fixation, the visual acuity for distance was between 6/18 and 6/36 before treatment. Ten gained distance acuity of 6/12 or better, and two improved from 6/36 to 6/18. In near acuity, all 12 gained acuity of 6/12 or better. In the 38 patients with eccentric fixation, 26 developed central fixation, and eight central fixation with nystagmus. The starting acuity for distance ran from perception of hand movements to 6/18, and improved in all but four cases. In near vision, which throughout the series improved under treatment more than distance acuity, 29 of the 36 gained an acuity of 6/12 or better.

The fact that in 42 cases occlusion of the unaffected eye had been tried for an average of eight months with no measurable improvement in visual acuity is believed to be due to the fact that there was an undiagnosed eccentric fixation, which occlusion only made worse. It is recommended that in all cases of amblyopia the type of fixation should be diagnosed before treatment of any kind is started. The treatment should begin as soon as the child is old enough to cooperate, so that he will have the best possible acuity in both eyes at the earliest possible age; with adequate therapy the amblyopic eye will not return to eccentric fixation.—(*Br. Jour. Ophthal. 42*: 457, via *Sight Saving Review, 29*: 1, 1959).

OPHTHALMOLOGY THROUGH THE GENERAL PRACTITIONER'S EYES*

A. V. RAJAGOPAL, M.S., D.O. (Lond.),
District Medical Officer, Chingleput

I AM thankful to you for giving me an opportunity to speak at this Conference as the representative of the general practitioners whose views on ophthalmology, I propose to place before you, in addition to my own.

To this end, I deemed it wise to obtain the views of some of the busy general practitioners and present them, along with my own; general practitioners vary in type just as there are ophthalmologists of varied types. There are no particular standards set for either. Outside the services, one may call himself as much a general practitioner as he may call himself an ophthalmologist. To be a general practitioner one must have at least some basic medical qualification, but to style himself an ophthalmologist, even that is not required. His own assumption of the role is enough to call himself an ophthalmologist or any specialist, irrespective of the academic qualification.

I shall now narrate my impressions of a few typical general practitioners and their views.

GENERAL PRACTITIONER I:—What is it that I should see in Ophthalmology? What is wonderful about it? I have had no regrets or troubles regarding my patient's eye trouble, and I have not bothered to ponder over this speciality. I keep in mind that I should not miss a case of cataract, glaucoma, iritis or conjunctivitis. That is about all that an Ophthalmologist keeps in mind also. If it is *cataract*, there is a competition amongst them. I refer a case of *glaucoma*, to the Ophthalmic Hospital. As regards *conjunctivitis*, we have such a variety of antibiotics available to try and some one of them acts; the patient is cured or at all events he does not come back to my clinic! Some may go to the ophthalmic hospital or seek specialists on their own. Regarding *iritis*, I adopt a certain routine which I learnt as a student at the Ophthalmic Hospital, and which I remember quite well. I have added some more from the literature which the pharmaceutical firms have been constantly sending. I give antibiotics locally and orally, 6 injections of neutral iodine intravenously on alternate days; 6 injections of milk every third day; this is the routine in our College days. Now I also give cortisone ointment locally, and Irgapyrin injections. Sometimes, I give atropine also locally. I used to give atropine regularly but two of my cases became worse and so I am careful (may be he missed the atropine reaction or the patient had an increase of tension before the atropine!) However, I send the blood for W. R. and Kahn tests. I have cured a number of cases, but the persistent ones go to the Ophthalmic Hospital of their own accord. They send the blood for VDRL and follow the same routine that I followed; this I gathered from some patients who returned to me with the prescriptions given to them by the specialists or at the Ophthalmic Hospital. So, I do not see anything different to what the Ophthalmologist sees.

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Specially contributed to the ANTISEPTIC.

GENERAL PRACTITIONER II:—What is there in Ophthalmology to see through our eyes?! Why all this fuss? I got my glasses from a specialist, but they did not suit me and I went back to him. He said that I must get *used* to the glasses. He never even checked the power of the glasses and its suitability but straightaway told me "If you had given me the right answers at the time of my examining you, there will be no need for a check-up. Well, do you know what I did? I went to the Moore Market and got another pair of glasses and the vendor there adopted the same trial and error method depending on my answer. The glasses he gave me suits me fine—and the prescription he gave me was the same as what the oculist gave but with a difference *in the sign before the power!* He gave a *plus* against the oculist's *minus*. I then wrote to the specialist and sent back his prescription. So far I have not had even an acknowledgement! So, you know my views about the Ophthalmology even before I tell you. (Though very rare, this mistake *can* happen).

GENERAL PRACTITIONER III:—I feel Ophthalmology is a speciality of the 'Power-Block' and the Oculists, I am afraid play into their hands. We are told that Sir Duke Elder wrote seven volumes to cover the field of Ophthalmology and that he has started writing another fifteen volumes—to bring the subject up-to-date; so too have so many others, written any number of volumes on the surgery of the eye. These, I am sure are read by most of the Ophthalmologists. But what is the end result? The 'Power-Block' lays emphasis on eye-camps. They praise such work as wonderful, evaluating it in terms of the number of patients treated and the enormous work turned out at such camps. If the trained Ophthalmologists do not accept this view, untrained ones or indeed anyone coming forward to do such campwork are backed up to run these camps. What is the result? You all know. And what happens? The oculists are at the beginning of the cross roads. They are unable to do anything about this. They are forced to fall in line with the power-block's mandate; thus the only obvious thing they can do is to prevent these capmps getting into the hands of the unqualified and thus trying to make the best of a bad bargain. But is it the best when so much is being written about ocular surgery, the type of operation theatres, ophthalmic nursing for the use of ophthalmologists? If this is the best, why have static eye hospitals? I feel ophthalmology is unique in that it is handled, by so many unqualified persons! In no other speciality do we find such intrusion.

GENERAL PRACTITIONER IV:—What is Ophthalmology? Perform cataract surgery; do refraction by trial and error and you are an eye-specialist. There is no need to attend an eye hospital and get specially trained. The one thing that is readily available, especially in the villages is the human eye, to practise on. Go to any village, say you have come to do 'Cataract' surgery, and there will be a long queue of anxious sufferers. Count your successes; failures do not matter. The person operated was not seeing before the operation and so will reconcile to the failure and you can therefore, get away with it. If I chose I could have been an eye-specialist of that type. But it was not to my liking.

GENERAL PRACTITIONER V:—Is Ophthalmology what it should be? The ophthalmologist must answer. I feel it is not, and we are years behind time. My son was keen on specializing in ophthalmology; so I made a special study of it. I visited a few specialists in South India as well as some Ophthalmic Institutions. When I went abroad with the Indian Medical Counsil Team, I made it a point to visit some Ophthalmic Institutions abroad, as also some private consultants. I must say our ophthalmology is still in the Library Stage.

These are the answers I had from five general practitioners.

As regards my own views, which are based on my experience as a District Medical Officer and previously as a practitioner of ophthalmology for a number of years, I would like to make some reasonable comparisons. Our views on any subject always stem for comparative estimates and standards. The general practitioner should remember that the eye is a part of the body and the window of the mind. In a proper examination, it is prone to show locally changes in many of the general systemic disorders. So, when he sees ocular manifestations in his general practice, associated with any other malady he should get the opinion of an oculist. But usually he defers it to the last. Similarly, the oculist should obtain a history of the case from the general practitioner or the opinion of a physician or surgeon as indicated. He should not be satisfied with treating the eye condition alone, but should realize that treating the general systemic disorder or atleast advising such treatment, is also his responsibility.

In any medical institution, there must be a neuro-medical Ophthalmological Unit to work in close collaboration. In other words, the specialist and the general practitioner should work together.

Ophthalmology in the eyes of the general practitioner may aptly be compared to the subtle difference between '*Seeing*' and '*Sight*'. Seeing is a complex mechanism and Sight is much more so. Seeing pertains to the eye as an ocular optical apparatus only, while sight is the blending of various impressions in the brain with the impressions from the eye and thus giving it the third device seen. This is proportional to the depth of one's knowledge. Thus, a limit is set for the perimeter of sight, which is again very limited in the case of the general practitioner. In other words, the general practitioner sees ophthalmology within the scope of the contracted field. In the case of an ophthalmologist, this perimeter should extend beyond infinity, not only in the knowledge of the science of ophthalmology but also in the practice of it. The oculist with the infinite perimeter must give a varied depth to the visual picture of the ophthalmological cases, and produce thereby a multitude of pictures in his mind from a given visual perception and finally give the correct one to his colleagues as his considered opinion. He will be the ideal ophthalmologist. I therefore, enter a strong plea for such a close collaboration with other medical men, apart from general practitioners.

A COMPARISON OF THREE ORAL DIURETIC AGENTS

This study was carried out to compare the diuretic response produced by single oral doses of chlorothiazide, hydrochlorothiazide, and a phenothiazine derivative, pyrathiazine. The three agents were given several times to each patient who received, in random order, a different drug every day of multiple consecutive three-day periods. All patients had fluid retention due to congestive heart failure, Lænnec's cirrhosis, metastatic neoplasm, or the nephrotic syndrome. Nine patients were studied over a

total of 56 days of therapy. The daily dose of 1·0 gm. chlorothiazide, 150 mg. hydrochlorothiazide, or 1·5 gm. pyrathiazine always was given at the same hour each day. Body weight was recorded just before administration. 24-hour urine collections were divided into that obtained during the first six hours after the drug was given and that during the subsequent 18 hours. Urine volumes were measured, and sodium and potassium contents were determined by flame photometry. In 2 patients, urine was collected hourly for the first four hours, then at eight and 24 hours to define more closely the duration of action.

In evaluating a diuretic agent, the most important measure is its natruretic effect since sodium is the major ionic constituent of the expanded extracellular fluid. Sodium loss is desirable and necessary for removal of œdema. Potassium loss is undesirable primarily because it increases digitalis toxicity, an important consideration in congestive failure, and also because depletion of body potassium occurs if the diuretic drug is given over a prolonged period. Though these drugs produced equal volume of urine, chlorothiazide causes the most natruresis, hydrochlorothiazide the most kaliuresis, and pyrathiazine the least natruresis and kaliuresis. In the doses used these drugs cause approximately equal degrees of diuresis, as evidenced by urine volume.—(*Univ. Mich. Med. Bull.*, July 1959).

IN-GROWN TOE-NAIL: A RESULT OF WEIGHT-BEARING ON SOFT TISSUE

The term "in-grown toe-nail" is unfortunate in that it incriminates the nail as the causative factor and is responsible for the fact that most operative and conservative treatments are directed toward the nail.

The Tripler U.S. Army Hospital records of 99 patients admitted for in-grown toe-nails between December 1949 and September 1956 have been reviewed. Many forms of conservative and palliative surgical treatment were used, and we know that recurrence has been frequent.

Since September 1956 we have advocated a more physiologic and sounder surgical approach to the patient with the "in-grown toe-nail.' 55 patients, 12 of whom had both great toes involved, have been treated as described below.

Patients with a severe purulent infection of the soft tissue are treated with local saline soaks or wet dressings and bed-rest until the inflammation has partially subsided. Antibiotics are not necessary. Then, under general nitrous oxide and oxygen anæsthesia, or under field or local procaine block anæsthesia, the toe is cleansed with soap and water. A generous excision of all soft tissue on the involved side of the toe is performed, starting at the edge of the normal nail and leaving the nail intact. The excision must expose a portion of the lateral aspect of the distal phalanx of the toe and extend at least 0·5 cm. behind the level of the base of the nail and is carried out completely to the end of the toe. Any prominent bleeding vessels are clamped and tied with fine gut sutures. When the excision is adequate, there is often a skin and soft tissue deficiency measuring 1·5 by 3 cm. The open wound is covered with fine mesh gauze and then bandaged. The patient soaks the bandage from the raw area 24 to 48 hours post-operatively, and repeats this soaking 3 to 6 times a day as the wound gradually epithelializes from the periphery inward. Daily bandaging is not necessary. In most cases the patient is able to wear loose-fitting shoes within 2 to 3 weeks. The end result is a healed toe with little or no lateral or medial soft tissue and a normal nail. —(*U. S. Armed Forces Med. Jour.*: Oct. '59).

TRANSCORNEAL CYCLODIALYSIS*

B. L. PANDEY, P.M.S.I.,
Ophthalmic Surgeon, W.H.M. Hospital, Kanpur

THE usual method of cyclodialysis operations is trans-scleral, which is more complicated than what I describe below, on the basis of my practical experience and observations.

I have found it so easy in my hands requiring very little equipment, that I wish to commend it to all ophthalmologists in preference to the usual trans-scleral cyclodialysis.

I started eye-surgery nearly 25 years ago when I had very few resources and equipment for eye-work. I still wanted to perform cyclodialysis operations. Further, being new to eye-surgery I was afraid to do it trans-sclerally lest I should puncture the choroidal and retinal layers in cutting over the sclera. It occurred to me that I may try it trans-corneally in a case of absolute glaucoma with raised tension. For this technique, four instruments *viz.*, the speculum, fixation forceps, cataract knife and a long iris repositor would suffice and I had the last one made locally by a goldsmith using a compound of silver and copper. Since then I had been doing this operation invariably in all cases of aphakia where the tension was raised. I had not thought of doing it in non-aphakia cases of glaucoma fearing injury to the lens (while passing the spatula in the corneal wounds and then in sub-choroidal space), leading to cataract formation which danger was however, not to be expected in cases of aphakia.

But now after operating some cases which I closely followed up I am convinced that it can be safely done in all non-congestive cases of glaucoma where the chamber is not very shallow. The results are satisfactory, provided one is catious while entering the anterior chamber by means of the spatula; and the danger of puncturing the choroid and retinal layers in trans-scleral method if one is not sufficiently cautious while cutting over the sclera, is altogether avoided in the trans-corneal method. So far I have not had this catastrophe in any of my cases done by the trans-scleral method. I may safely say that if it once occurs it will leave fair chances of marring the utility of the operation by causing fibrosis of the prolapsed vitreous and causing local adhesions in the sub-choroidal spaces, if at all one is able to finish the subsequent stages of the operation after meeting with this complication. The trans-corneal method should prove to be the operation of choice in all cases of deep anterior chamber. During the operation I did not come across any complications except hæmorrhage in the anterior chamber which got usually absorbed quickly in the course of a few days.

* Specially contributed to the ANTISEPTIC.

Technique.—A vertical section about 5 to 6 mm. in length is made on the outer side of the cornea, say from 8 o'clock to 10 o'clock by the ordinary cataract knife or keratome about 2 or 3 mm. inside the limbus after applying the speculum and fixing the eye-ball at the lower limbus. The blade of the iris repositor is bent to suit my convenience, mostly at 90° and I pass it through the chamber angle behind the ciliary body in the sub-choroidal space and move it up and down in order to open the chamber angle as widely as possible. Usually I also inject air into the anterior chamber, and sub-choroidal space at the end by means of a lachrimal syringe.

Besides the hæmorrhage in the anterior chamber which is quickly absorbed in some cases the tension is found to remain very low for some time, due perhaps to the mechanical injury to the ciliary body with a resulting diminished secretion of the aqueous. This also subsides soon by atropine locally and massive doses of Soda salicylas internally.

About a year ago I came across a reference to trans-corneal cyclodialysis in the *British Medical Journal* of June 1951, which is reported to have been done in some suitable non-aphakia cases of glaucoma.

Case reports.—CASE 1:—Mr. S., a retired Kanungo, with chronic simple glaucoma was operated in 1943 and was regularly observed up to 1948. The tension remained stationary after being lowered by transcorneal cyclodialysis.

CASE 2:—Mr. R. L. G., a government officer, was operated at Etawah (U.P.) in 1945 and no report of recurrence of raised tension was received after two years' time.

CASE 3:—Mrs. B. D. of Kanpur, with chronic simple glaucoma; right eye tension 50; left eye tension 30; as measured by Maclean's tonometer; right eye was operated by trans-corneal cyclodialysis in Feb. 1955, at the U.H.M. Hospital, Kanpur. At the time of discharge both eyes had a tension of 30. So far there has been no recurrence of rising tension reported.

CASE 4:—L., a case of secondary glaucoma due to leucoma adherence; right eye tension 60°; left eye 30: operated at the beginning of 1955 at U.H.M. Hospital, Kanpur. At the time of discharge the tension in right eye was 35 and in left eye 30. The case was seen 3 or 4 times since and the tension has remained stationary.

NOTE:—The tension records of the above two cases are not available here as they were operated in the district Etawah. All these four cases were non-aphakia cases.

A MODIFIED SMITH'S EXTRACTION METHOD FOR UNRIPE CATARACTS*

(Results of such operations over 25 years)

VEMPATI SURYANARAYANA,
Sri Krishna Eye Hospital, Tenali

CATARACTS were not considered suitable for operation unless they were ripe, till about 30 years ago; and many sufferers used to get disappointed and suffer mental agony and despair. But now they are operated successfully and become useful members of society. The nation as a whole is thereby benefited as the loss of man power is prevented. The intra-capsular technique which has now come to stay is quite as safe as the extracapsular method of extraction. It has been clearly proved that the fear of the loss of vision again in 2 or 3 years after an intracapsular extraction, is baseless and that persons operated for unripe cataract regain and maintain the same good vision as those whose cataracts were operated after maturing.

Lt. Col. Smith who made considerable researches on this method came to the conclusion that it was quite safe and did not produce any deterioration or damage later on. The results of his work are embodied in his book on '*Cataract*.' To him goes the credit of having discovered the fool-proof technique of delivering the lens as a 'tumbler' which he practised widely and which came to be known as the '*Intracapsular delivery by the upright method*.' The minor difficulties and occasional damage to the vitreous, encountered in the earlier stages of the practice of this technique were soon overcome.

Being deeply interested in this technique as early as 1934 I toured the Punjab where Smith's method was in popular use and on my return, gave my patients the benefit of the tumbling method, much to the gratification of the sufferers. I visited the Punjab again two years later to acquaint myself with the advances and improvements if any and the results of the follow-up of the operated cases. I had no hesitation on my return in continuing to adopt this method universally in all cases with great and lasting benefit. Patients came from distant places to get their immature cataracts operated.

About four years ago, some complicated cases were getting the benefit of central corneal stitching, which has become a regular feature in every case during the last 28 months.

The 'Tumbling method' of extraction, the single or the bilateral peripheral iridectomies, the corneal stitching, the improved method of akinesia, coupled with the satisfactory results obtained during 30 years convinced me that the intra-capsular

*Specially contributed to the ANTISEPTIC

extraction for unripe cataracts must form the routine procedure to be adopted by all the medical practitioners, particularly in South India.

A few friends from Madras came and watched my work and felt impressed with the elegance of this method and I learn they have also been following it with encouraging results. Others who desire to do so, are welcome to contact me and have demonstrations of the technique arranged for them to witness.

Pre-operative care of cataract patients :—A trial bandage should be put on and the lacrimal sac examined ; the urine tested for albumen and sugar in every case without exception.

Fundus examination is essential in all immature cataract cases as this would prevent avoidable shock; a guarded prognosis may be given where a moderately thick lenticular opacity is associated, say with secondary optic atrophy, glaucomatous cupping, retinitis pigmentosa (not too far advanced). If the dimness is very much out of proportion to the lenticular opacity present and the fundus picture is not sufficiently encouraging, cataract extraction should be withheld from such patients. Selection of suitable cases is thus essential.

Chronic cough of moderate intensity particularly in the old need not be a bar to operation as complete iridectomy and corneal stitching will prevent any harm.

Topical application of an antibiotic for 3 or 4 days prior to operation with parenteral medication in patients with P.A. or in one-eyed patients are necessary precautionary steps. Patients with high blood-pressure, albumen and sugar in the urine should be given suitable preliminary treatment for a week or two prior to operation.

A purge is given on the previous day and the patient kept on liquid diet such as milk and fruit juice.

For nervous persons reassurance is necessary, and Largactil and Pethidine or Paraldehyde may be given to sooth the nerves and enable them to behave quietly.

Details of the operation.—Three instillations of 1% pantocaine with adrenalin drops are given; atropine drops (2 gr. to 1 oz.) are applied once, 10 minutes before the operation.

Facial block 10 cc. of novocaine (2%) is injected along the temple. Retrobulbar novocaine (2%) 1·0 cc. is also given to every case. The superior rectus is ligated as a routine.

The site of the corneal stitch is marked with a 4 per cent solution of gentian-violet vertically across the limbus above at the centre of section. A blunted cystitome with the tip cut off and the end bent in the form of an 'L' is used for the marking.

With the Smith's speculum controlling the lids, a section is made with a Weiss knife; in virtue of the corneal stitch, the section is made safely well over 180° *i.e.*, 185°. I recommend the use of the right hand even for patients whose left eyes have to be operated, as every patient would then have the benefit of all the cases done previously. An eminent surgeon remarked years ago "If a surgeon cannot trust himself to shave his beard with

an ordinary razor blade (not the safety one) held in the left hand, what right has he to cut the left cornea with the left hand?" Left handed surgeons will of course be exceptions. Anbidextrous surgeons may of course, use either hand.

In patients with a shrivelled up conjunctival sac, resulting from an old trachoma, and in fidgety patients external canthotomy is done which is closed with a stitch at the completion of the operation.

Now, with a piece of safety razor blade mounted on a handle, the section is enlarged at either end, the extension being made so far as to avoid bleeding from the sclero-cornea. I have found the modification to facilitate an easy rupture of the suspensory ligament below as the tip of the lens spatula is thus in a position to convey the pressure strokes quite precisely through the mobile cornea. When the lateral cutting is not done, the corneal flap has a more or less spring action which deters free and easy communication of pressure. The 'tumbling' is therefore, easily achieved, in cases where the lateral cutting is made as described above. Besides, the cornea now adapts itself with ease to the advancing lens which is gently stroked out with the lens hook applied to the cornea from the limbus below-upwards. The increased width of the wound is an added advantage for easy and safe delivery. The bilateral extension in fact achieves in a simpler way and with less cost what Smith aimed with the knife designed by him; the life of the knife is very much shortened by negotiating the tough limbus with it. Peripheral iridectomies are done centrally or bilaterally, the surgeon working through the binoculars or the operating spectacles with *plus* five prisms, the bases being directed inwards. In cataracts complicated with old iritis or in old patients with a chronic cough, complete iridectomy is preferred to peripheral iridectomy.

At this stage the corneal suture is applied. With the corneal flap held by the limbal forceps, 1½ mm. bite is taken, the needle passing through the anterior layers of the cornea in the axis marked before with gentian violet. The needle is now taken through the scleral lip of the wound. Here also 1½ mm. amount of tissue is included in the bite. Care is taken to see that the needle passes through the anterior layers of the scleral lip of the wound. The idea is to avoid emptying of the anterior chamber when the stitch is removed on the 14th day.

A fairly big loop of silk thread is taken and made to stay on the globe to the right of the stitch. For the left eye also, the loop is drawn and allowed to stay on the globe to the right of the stitch so as not to interfere with the play of the modified lens spatula which is to be introduced shortly into the anterior chamber to the left of the corneal stitch.

At this stage the modified lens spatula designed by me is introduced into the anterior chamber. This spatula has a small oval flattened end standing horizontally on a thin rod fixed to a handle which is controlled by the left hand. The flattened end is introduced into the anterior chamber and made to lie on the iris just below the section, in order to exert a counter-pressure and prevent the top-pole of the lens from advancing first. Now, the lens hook is applied to the globe just below the limbus and gentle pressure is applied—the pressure being directed upwards and towards the centre of the globle. The tip of the lens spatula is shifted a little medially and laterally, the pressure and counter-pressure being maintained as described above. The suspensory ligament gives way at some point below and the bottom of the lens peeps through the cornea at an axis corresponding to the tear. Now, the direction of the lens hook is altered. The bend of the lens hook is applied to the cornea and gentle pressure is made to reach the lens through it. The modified lens spatula is then replaced by an ordinary iris repositor which is made to control the anterior surface of the lens now directed towards the eye-brow as it has tumbled and has advanced half-way into the wound. With the iris repositor controlling the anterior surface of the lens and the lens hook controlling its posterior surface through the cornea or directly if possible, the lens is wheeled out on its long axis in the clock-wise direction when it comes out of the wound. Sometimes it is easier to thrust the corneal flap behind the lens and with the spoon introduced just above the cornea and behind the posterior capsule of the lens, the lens is delivered on the spoon quite uneventfully. In all-well conducted cases the posterior segment is quiet in its place and the cornea is sunken. There is no strain whatever on the vitreous body and the hyaloid membrane.

Morgagnian cataract deliver easily as tumblers in some cases. But the tear in the suspensory ligament is brought about by the point of the lens hook being directed from the lower third of the cornea downwards and towards the centre of the globe. The top-pole is kept under control as in immature lens extractions.

Soft lenses with friable capsules are difficult to 'tumble' and are, therefore, delivered by the extracapsular method of extraction. Here too, experience has shown a way by which one could be sure that a fair bit of the anterior capsule comes out before delivery of the nucleus in every case. The corneal flap is held forwards with the limbal forceps controlling the loop of silk which was put into position for the corneal stitching and a tiny puncture is made in the anterior capsule with the cystitome by sight at the lateral margin of the pupil. One blade of the teethless capsule forceps is passed behind the anterior capsule, wh

the other blade is passed over it. The two blades are gently brought together and the capsule pulled out slowly when a more or less large part of the capsule comes out for a certainty. Then the nucleus is delivered and the remaining cortex washed out.

Even if some cortex resists washing, since the anterior capsule is absent at the centre, the cortex gets absorbed thus rendering the formation of an after-cataract almost impossible. I have discussed the capsulotomy operation here as it has a bearing on the subject of this article. In patients below 40 years of age where the lens does not show signs of maturing within a reasonable time and the patient is handicapped for want of good vision, I have not hesitated to do extra-capsular extraction with the special precaution of seeing to it that a large part of the anterior capsule is positively brought out in the manner described above. Then washing out as much of the cortex as possible and giving subconjunctivally Cynide Eymide 0·75 cc. of 1 in 5000 into the lower fornix coupled with parenteral antibiotics have given results that compared favourably with the intra-capsular work, for which the age factor of below 40 years is ac ontra-indication as the suspensory ligament is then relatively tough.

The corneal stitch is tied at this stage. The first step of the reef-knot is reduplicated to avoid excessive pressure on the tissues and to secure a reasonable firmness on the stitch.

The iris is reposed with the forked end of Dastoor's iris repositor. Both eyes are then bandaged and kept so for a week.

Dressing is done every other day by using E_2 or A_4 depending on the nature of the pupil. The corneal stitch is removed on the 14th day and a shade given on 15th-16th day; by the end of the third week, the patient is discharged.

With single or bilateral P. Is and corneal stitching, the possibilities of Iris incarcerations and iris prolapses are comparatively rare. Very fidgety patients who are apt to injure themselves while sleeping or even while awake are again put on the table and after a facial block and careful retrobulbar injection of Planocaine, the wound is separated with the Dastoor's iris repositor and the prolapsed iris gently pulled and excised. Wherever necessary, a second corneal stitch also is put in that axis, particularly if the vitreous prolapses during excision of the prolapsed iris.

A few cases are met with in which iritis occurs inspite of all care and a thin film of exudate blocks the pupil with serious detriment to vision. In such cases after topical treatment for iritis with parenteral medications needling is undertaken, as for after-cataract in extra-capsular extractions. This has made all the difference between indifferent result and quite an useful eye.

As for Akanesia, all the precautions taken at the time of

A drop of novocaine with A_4 and one drop of Adrenalin are given subconjunctivally half an hour before the operation.

With a Saunder's needle introduced into the anterior chamber at a convenient angle (which varies with cases) for the full length of the engaging end, it is withdrawn for a little distance. This precaution is necessary for the free play of the needle at the site of the corneal puncture. The tip of the needle is then introduced just under the organised membrane avoiding the hyaloid behind. The tip is then brought out at the margin of the pupil opposite and the membrane lying over the needle torn out of its place when the pupil becomes clear. Considerable care must be taken to avoid damage to the hyaloid. This operation is invariably done using the binoculars.

Ever since I evolved the method of capsulectomy as a definite step in extra-capsular extractions, the need for needling for after-cataracts has become greatly less.

Doctors interested in this method are welcome to the writer's clinic to witness the various steps in the technique, by previous appointment.

Tables I and II

Showing the details of the operations conducted by me using the method detailed

Details	1934 to 1959		7-8-'57 to 31-10-'59	
	No.	Percentage	No.	Percentage
No. of intra-ocular extractions ...	66608		1748	Corneal stitching in every case
Patients with vision 6/24 to 6/6 ...	4603	70·3%	1443	82·5%
Patients with vision 6/6 to 6/36 ...	730	11·0%	146	8·5%
" " below 6/60 ...	401	6·0%	70	4·0%
Blind ...	59	1·0%	1	...
Vision not recorded ...	760	11·5%	87	5·0%
Septic ...	12	0·2%	...	...
No. of patients with vitreous escape ...	166	2 5%	12	0·75%
No. of patients with iris prolapse ...	301	4·5%	4	0·2 %
No. of patients with capsule burst ...	91	1·5%	17	1·0%
No. of patients who had simple operations	472	...	30	...
No. of patients who had complete iridectomy	2749	...	*202*	...
No. of patients who had peripheral iridectomy	3387	...	*1516*	...
No. of patients who had turned sections ...	7	...	Nil	...
No. of cases which had intra-ocular hæmorrhages	5	...	Nil	...

Table I gives the analysis of all the intra-capsular extractions done during the past 25 years. In the earlier years the facial blocks, retrobulbar novocaine the superior rectus stitch and the lateral extensions of the sections were not used, nor was a corneal stitching made, 473 intra-capsular extractions were done with no iridectomy whatsoever. These factors account for the large number of vitreous and iris prolapses.

Table II (as compared with Table I) shows the greater security of this technique when properly followed.

Prolapses of the iris and of the vitreous are reduced to a minimum. Convalescence has been very smooth and uneventful.

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Editorials

RING OUT THE OLD AND RING IN THE NEW YEAR

LET us ring out the old and ring in the New Year, but it will be well to review and record the momentous world events that have happened in all spheres of human endeavour throughout the world. These have been so many and of such far-reaching consequences that nearly all nations of the world have been hit in one way and another. The cold war has not thawed but has showed a tendency to reach lower degrees of freezing particularly in the matter of disarmament. The *Panch Sheela* which, we hoped, had come to be accepted by all nations has been given a rude shock by Chinese aggression, and by internal disturbances in other lands like Indonesia, Egypt, Israel, Cyprus and also in one or two South American States. If the five principles of peaceful co-existence are not adopted by all nations, the mounting tensions, fear and apprehensions for safety and human welfare, are bound to create a general atmosphere of social, political and economic insecurity and unrest all over the world.

In this depressing, dismal and clouded atmosphere round the world, the eleven-nation-tour of President EISENHOWER came as a meteoric flash, which we hope will clear the mist and brighten the outlook to a great extent. His peace and good-will mission to India last month was a mighty success and the communique issued by him and our Prime Minister NEHRU after joint consultations and free discussions of various problems is a historic document. The American President was impressed by the vitality of India's democratic institutions and by India's strength of spirit combined with practical idealism. He saw how India, like the United States, has created mutual strength out of diversity, neither country boasting that there is the only

way. He confirmed the bond of shared ideals between India and the U.S., their identity of objectives, and their common quest for a just and lasting peace.

He said "Between the first largest democracy on earth, India, and the second largest, America lie 10,000 miles of land and ocean. But in our fundamental ideas and convictions about democracy we are close neighbours. We ought to be close. We who are free—and who prize our freedom above all other gifts of God and nature must know each other better, trust each other more, support each other loyally." We quite appreciate his contention that a free society of nations can continue to exist only as it meets the rightful demands of people for security, progress and increasing opportunity for the betterment of themselves and their children. The welfare of all the nations is thus of paramount importance.

The pressure from China's covert acts of aggression has come at a time when India's future depends on far-reaching decisions at home and among her friends and well-wishers abroad. "There are great but subtle and extremely delicate decisions to be taken primarily in Moscow but also in Washington as to how to preserve the peace of inner Asia by the containment of China." Our Prime Minister is firmly convinced that force is no remedy for any of the world's ills and he has repeatedly expressed his readiness to negotiate over the points in dispute with China—a stand which has been appreciated by impartial observers abroad. But China's response so far has not been satisfactory. There are also decisions to be taken, primarily in Washington but also in London, Bonn and Moscow and perhaps also Tokyo, as to how the economic salvation of India is to be financed.

But inside India there are decisions to be made which are no less momentous. The completion of the Second Five-Year-Plan and the final planning for the Third Five Year period are matters of very great import for India.

The unfortunate and deplorable indiscipline and unrest amongst students in many States of India are, as Dr. Radhakrishnan said "matters of sorrow and great concern to the Governments," for the students of today will be the citizens of tomorrow shouldering responsibilities for the welfare of the nation. The food situation and the population problem are two other matters causing anxiety and so requiring tactful but firm handling.

The Big Four Western leaders who met in Paris in the third week of December reached agreement on the general terms of the communication, they propose to send to Mr. Khrushchev inviting him to the summit talks which may be held at Geneva on 25th April 1960 and there would appear to be indications that he would accept the invitations. And if he did, we may predict very

practical and highly beneficial results to emanate from these summit talks, to secure abiding peace and goodwill in the world. The 'open world' concept recently announced by Mr. Adlai Stevenson includes a 5,000 million-dollar-(Rs. 2,380 crores) a-year-programme to help underdeveloped countries. This aid programme will certainly help to solve many difficult problems, if it is internationally co-ordinated and allowed to continue for the rest of this century. The two most dangerous realities we now face are: the multiplication of nuclear weapons and the disparity of living standards between the rich nations and the poor, and these could be effectively wiped out only by such a long distance plan.

As regards affairs nearer home, the Second Five-Year-Plan had had to suffer curtailments in certain respects of the planned schemes owing to financial and other difficulties and the Public Health programme suffered also in this set-back. The control of communicable diseases like malaria, leprosy, tuberculosis, filariasis and yaws progressed, however, satisfactorily, thanks to the aid from WHO and other international organizations in the shape of men and money. The E.S.I. Scheme is also progressing well and the families of workers are now included in the plan for getting medical and other benefits. The N.E.S. and Community Projects and the *Gram Sevak* Organizations have been greatly expanded and now cover wider areas. The Indian Medical Association and its various State, and District Branches have been meeting frequently and doing good work. Annual conferences of the specialist societies have been held as usual and are becoming increasingly popular as judged by the attendance and the presentation of papers and demonstrations of great practical value. Child Health has come to receive greater attention as also maternal welfare. An all round improvement, albeit short of the expected level, was therefore manifest in nearly all branches of Medical and Public Health Services during the past year.

We finally come to the pleasant duty of conveying to our numerous constituents, readers, advertisers and contributors our grateful thanks and warm appreciation of their continued hearty co-operation in our humble endeavour to serve them and the cause of medical and scientific progress in the country. We send them heartiest greetings and good wishes for a bright and prosperous New Year.

THE ERADICATION AND CONTROL OF SMALLPOX AND CHOLERA IN INDIA

At the extraordinary meeting of the Central Council of Health held at New Delhi for 2 days on the 28th and 29th November 1959, Shri D. P. Karmarkar, the Union Minister for Health

reviewed the progress made in health Services and disease-control during the Second Five-Year Plan and invited the views and comments thereon from the States Health Ministers and the representatives of the various Central Ministries who attended the meeting. The W.H.O., UNICEF and other international agencies also participated in the discussions. The council had suggested that the national schemes should include the control and eradication of all communicable diseases on a priority level among several other important items relating to public health. These proposals were discussed at great length and the resolution eventually adopted said that "after reviewing the progress of the centrally-aided and centrally-sponsored schemes in the Second Plan, the council recognized the need for promotion of certain basic needs for the development of health services in the country and urged the desirability of achieving uniformity of approach and action on an All-India level."

It will be remembered in this context that, following a rise in the incidence of small-pox in the early part of 1958 and an epidemic outbreak of cholera in certain States, the Union Ministry of Health asked the Indian Council of Medical Research to set up an Expert Committee to study this important question in all its bearings. This committee under the chairmanship of Shri Dr. C. G. Pandit, the Director of the I.C.M.R , has formulated certain concrete proposals for the eradication of smallpox and cholera which have in the past taken a heavy toll of human lives and continue to be a menace in the land. The Committee decided to launch immediately an eradication programme against smallpox and also suggested that the objective of a nation-wide programme should be the vaccination of the entire population within a period of three years under a Central Infectious Diseases Control Act to ensure uniform procedures in all the States. There should be District Anti-epidemic Committees to help in carrying out the programme and units in each State to keep the disease under study. Each State should start a pilot project in areas with a population of 60,000 in order to estimate the man-power and money needed, and administrative staff should be developed at District and State levels for dealing with the practical side of control. In that connection the Madras State Government, we learn, has invited two research workers of the W.H.O. to come and help at the King Institute, Guindy, with the preparation of the scheme for the State. Under this scheme the Expert Committee suggests in the first place the vaccination of the entire population, the task to be completed within three years, and that thereafter, there should be regular re-vaccinations until the disease has been eliminated from the country. Every new-born child will have to be immunized for a start. The Committee suggests also a Central Control Committee and the allocation, initially of Rs. 7·5 crores. The first essential is the training of

sufficient personnel, but that should not be an insuperable task for the course need not be a prolonged one. Vaccination is comparatively a simple procedure, and with ordinary care there will be no ill-effects.

The educative aspect of the campaign has also to be considered equally as important as the active immunization part, and when people are made to realize the seriousness of both of these diseases we are confident that the scheme for treatment will be readily accepted.

Smallpox epidemics usually occur every five or six years and State authorities believe that the recurrence is due, not only to failure to re-vaccinate but also to the fact that thousands of children are not vaccinated at all in their first year. To ensure that this is done, it is necessary to have proper registration of births and deaths and the Committee suggests that in the villages, the Secretary of the *Gram-Panchayat* should be appointed Registrar and that before a child is admitted into a primary school, the parents should be required to produce the birth-certificate. The *Panchayats* should also be made responsibe for notification of the disease.

As for cholera, the steps are to be taken in the first instance in West Bengal and Orissa, which have the highest incidence of this disease probably in the whole of India. An area of 500 square miles round the city of Calcutta is to be made the scene of operations as the Committee believes that Calcutta is the major source of infection, as are also Puri and Cuttack in Orissa. It is felt that the incidence of cholera for the whole of India would diminish, if control measures were taken in these two areas. Inoculation against cholera is recommended in all industrial factories and also for immigrant labour employed in villages. Mobile hospitals will thus be needed for the rural areas especially, since inoculation for cholera is needed every six months. The Committee points out that the States that are relatively free of cholera are the Punjab, Assam, Kerala, Rajasthan and Kashmir. In the other States, cholera tends to occur in the latter half of the year, while smallpox occurs in the first half. The mortality from cholera is nearly forty per cent. This high rate is probably due to failure to take precautionary measures in good time, though nearly all the States are aware of the seriousness of the problem.

We are of the firm belief that the still high incidence of smallpox and cholera justify the steps which are proposed to be taken. Health is the greatest asset of the people, and the investment in any scheme which will ensure better health will redound many times to the benefit of the nation and to the credit of the Health authorities, who plan well. The greater the speed with which the recommendations are implemented, the better will it be for the welfare of the nation as a whole.

THE PROGRESS OF MEDICAL RELIEF IN INDIA THROUGH MISSIONARY ZEAL

PRESIDING over a meeting of Indian Leprosy Association the Madras Medical College in September last, Sri A. MANICKAVELU, the Madras State Health Minister, stressed the need for integrating the work rendered by voluntary organizations in the control and treatment of diseases like leprosy, within the framework of medical and public health service. It was stated at this meeting by the Secretary of that Association that Madras was very fortunate in having outstanding leaders in leprosy-relief work and in no other State was there so much work done by missionary and other voluntary organizations.

In the context of the above observations by two very able and well-informed health authorities, it gives us particular pleasure indeed to place on record the noble and humane work which Dr. IDA S. SCUDDER, Principal Emeritus of the Christian Medical College Hospital at Vellore has heen doing unostentatiously for over 60 years. Speaking at the 90th birthday celebrations of this selfless distinguished lady, who is fortunately still with us and was present at this memorable function, Sri. Dr. U. KRISHNA RAU, Speaker of the Madras Legislative Assembly, paid a glowing tribute to her work and said that she had devoted her entire life to the healing of suffering humanity. Here was a consecreted life of devotion to the noble cause she chose to espouse.

Dr. SCUDDER commenced her selfless service in India 60 years ago and was closely connected with the growth and development of the Christian Medical College and Hospital. These institutions have come to occupy a prominent place among medical institutions in India, and the volume and quality of the work turned out here were as good as that in any part of the world. Dr. KRISHNA RAU said "the rapid growth of the institution, and its eminence, were due to her. Now the hospital had 800 beds and annually treated 80,000 patients. Twenty-five doctors and about 50 to 100 nurses pass out every year with a mission to serve the sick. Its departments of Thoracic Surgery, Orthopædic Surgery and Neuro-Surgery are among the best in India—perhaps in the world, too. It has an eye hospital, radiological departments, and a department of Preventive and Social Medicine. There is also a leprosy rehabilitation centre. A Rural Health Centre and a Mental Health Centre are doing very good work. Research work receives special attention in the institution. The College campus is situated on a 200 acre site. All these were due to the untiring efforts of Dr. SCUDDER supported by a band of devoted, loyal lieutenants inspired by missionary zeal."

Dr. SCUDDER was born in India and spent her early years with her parents at Vellore. She then went to America and

studied medicine. After taking her degree in Cornell University she returned to India and started her medical mission in Vellore. She had the co-operation of millions who benefited by her life-work, in erecting the magnificent edifices seen today at Vellore.

Dr. KRISHNA RAU who had been associated with this great lady doctor in many medical conferences and knew her talents, and keen sense of humour very well, said that she was indeed a Good Samaritan who always radiated happiness and cheer and was a stern disciplinarian at the same time. Dr. IDA SCUDDER was a most distinguished citizen of India and by her silent, indefatigable and splendid work was, as Dr. KRISHNA RAU aptly put it, responsible for putting Vellore not only on the medical map of India but of the whole world.

It is indeed a matter of rejoicing to know that the Vellore Medical institutions, so well nurtured by Dr. SCUDDER through sixty long years, have earned an international reputation for outstandingly brilliant work in various fields of operative surgery, that is being carried on there by a galaxy of eminent surgeons like Drs. BRAND, BETTS, CHANDY and CARMAN, to mention a few, who, actuated solely by humanitarian and philanthropic motives have given of their very best in their great labour of love, *namely*, the relief of human suffering, without a thought for material gain. Their scheme of extension of medical relief to the adjoining rural tracts over a wide area, has been a signal success as judged by the great popularity earned by the visiting teams.

Need we say that, along with those benefited by this noble philanthropic work, we feel deeply grateful to Dr. SCUDDER and her missionary lieutenants for all that they have done to India and it is our sincere wish that many more such voluntary organizations come into being and carry on this humane task in other areas of the land with the same zeal and spirit of service.

TONSILLECTOMY AND ALLERGY

Among 20 patients free from allergies before tonsillectomy, all developed allergic manifestations within one to 12 years postoperatively—including asthma, hay fever, rhinitis and bronchitis. Among 50 suffering allergies preoperatively, two improved under allergic management, eight became worse, and seventeen developed new allergies, with the remainder not improved in the long run. It is concluded that asthma and other allergies are in themselves no indication for tonsillectomy, that the operation will not only *not* cure allergic diseases but may induce new ones. Tonsillectomy should be done to remove infective tissue which acts as a focus of infection or as a trigger mechanism.—(Drs. Mary F. Lerner and Harry Markow, Beth-El Hospital, Brooklyn, N.Y., *Proc. American Academy of Allergy*, Chicago, February, 1959).

GLEANINGS FROM THE MEDICAL PRESS

MEDICINE & THERAPEUTICS

Migraine.—(*G.P.*, April 1959).

TREATMENT:—The first principle in treatment is to start the moment the first sign of trouble appears. If the attack is mild, aspirin or some allied analgesic, often accompanied by mild sedative or by caffeine, may bring about adequate relief, and the patient may be able to continue with his normal activity. If the attack is somewhat more severe, he may have to rest in a darkened room for a period of time. Sometimes the application of cold packs to the head may give relief.

The major therapeutic measure in the treatment of the severe attack is the use of drugs to counteract the vasodilatation, *e.g.*, (nitroglycerine or carbon dioxide). The earlier these drugs are used the more effective they are.

The most effective one, that has stood the test of time, is *ergotamine tartrate*. This is specific in 70 to 90 per cent of patients with migraine, and is so successful in most cases that it may be used as a therapeutic test. Ergotamine tartrate is not an analgesic, a sedative or a narcotic and does not help in headaches other than those characterized by vasodilatation. It reduces the amplitude of vessel pulsations and is specific in man in therapeutic doses.

Standard ergotamine tartrate is given either by mouth or parenterally. Tablets of 1 mg. are available for oral or sublingual use. One or two tablets may be taken at the onset of a headache. If the headache is not relieved, an additional tablet may be taken every half hour, as needed, to a maximum of six in one day. If the patient is unable to take oral medication because of nausea and vomiting, or if more prompt relief of pain is indicated, ampoules are available containing 0·5 mg. of ergotamine tartrate, and one such dose, given subcutaneously or intramuscularly, may bring about dramatic improvement; this is a maximum dose for one day. The first time that ergotamine tartrate is given parenterally, however, it is best to use only half an ampoule (0·25 mg.).

Dihydroergotamine methane-sulphonate (D.H.E. 45), a related preparation, is less likely to produce gastrointestinal symptoms more than ergotamine tartrate, and as it has less vascular effect, is in general a safer drug to use.

Cafergot (Sandoz) is a combination of 1 mg. of ergotamine tartrate and 100 mg. of caffeine. This is often more effective than the ergotamine alone and may be given orally in the same dosage (1 to 2 tablets at the onset of the headache, followed by one every half hour, if headache persists, to a maximum of 6).

The above medications are also available in the form of suppositories. These are often quite effective. They act more quickly than oral preparations and may be given to persons who cannot take medicine by mouth because of nausea and vomiting.

Octin (methyliso-octenylamine, Knoll) is another antispasmodic drug which acts as a vasoconstrictor in some patients and in them may prove useful in relieving headaches of the migraine variety. It is seldom used by mouth, but on occasion, the 130 mg. tablet of Octin mucate is of value. When administered parenterally the preparation Octin hydrochloride is given in a dose of 0·5 to 1·0 cc. intramuscularly. This drug may be used with safety during pregnancy, but it may cause hypertension and should never be given to patients with vascular disease.

There are many *other preparations* which have been advocated for the relief of migraine headaches. These include, among others, nicotinic acid, thiamine, histamine, antihistaminics, endocrine products, steroids, amphetamine and many others. None of these has proved to be of specific value, but certain of them may be indicated for the treatment of some underlying

dysfunction which may aggravate or precipitate the migraine state.

Penicillin found effective against syphilitic psychosis.—(*N. Y. State J. Med.*, 1-8-1959).

More than 80 per cent of persons whose brains are damaged by syphilis can return to work if they receive penicillin in the early stages of the brain damage. Even the severely affected or institutionalized patient has one chance out of three for improvement and rehabilitation if given penicillin. A new study by Dr. R. D. Hahn and twelve other research workers in Johns Hopkins Hospital, Baltimore, dealing with 1,086 patients suffering from brain damage covered more than five years and was conducted in eight major hospitals. The report by the 13 researchers, appears in the May *Archives of Neurology and Psychiatry*.

Penicillin is the standard treatment for syphilis and if given early will prevent paresis altogether, the report said. None of the 1,086 patients had received penicillin for early syphilis. Paresis strikes most frequently during life's most productive years, after an incubation period that usually ranges from ten to twenty-four years. The symptoms range from tremors to serious psychosis. Without treatment, the outlook for a person with paresis is "dire"—with death occurring within five years after onset. When penicillin is given in the early stages of paresis, the death-rate is cut immensely.

The study showed that only 9 per cent of patients are dead from neurosyphilis ten years after treatment. However, the death-rate for paretics is about four times higher than for persons of comparable age, sex, and race because the paretics usually suffer from such other conditions as alcoholism or heart disease.

In most instances only one course of treatment with penicillin is necessary to favourably affect the course of paresis. Retreatment appears to exert little effect.

The study also indicated that the use of fever therapy, in which the patient is made to have a feverish disease such as malaria, is probably unnecessary. Fever therapy was long used alone and then combined with penicillin in the treatment of paresis. However, the use of penicillin alone seems to accomplish the same thing as the combination.

The effect of penicillin on individual symptoms and signs of paresis are, in general, "strikingly beneficent,' the report said. Disorientation, depression, convulsions tremors, incontinence, impaired handwriting, and other symptoms were greatly improved by the use of penicillin. However, impairments of speech, insight, calculation, judgement, and general information do not entirely disappear. Nevertheless, many patients with paresis can be rehabilitated and returned to work. The sooner the diagnosis is made and treatment begun, the better the chances of the person returning to a fairly normal life.

Treatment of heart failure.—(*Practr.*, October, 1959).

The most significant advance in the last few years in the treatment of heart failure has undoubtedly been the introduction of oral non-mercurial diuretic drugs. One of the first of these was aminometradine, which, because of its gastro-intestinal irritant action, has now been replaced by amisometradine. The latter, in a dose of 400 mg. four times on one day and twice daily thereafter, produces a diuresis approximately equivalent to half that induced by a standard 2 cc. dose of intramuscular mersalyl. Probably the most popular and widely used of these oral diuretics is chlorothiazide, now supplemented by hydrochlorothiazide with a similar action and some ten times the potency of the parent drug.

Chlorothiazide is a potent diuretic and has been found extremely valuable in the management of the ambulant cardiac patient who has been in failure. Drugs of the chlorothiazide group, however, promote a marked increase

in potassium excretion with a striking effect on the digitalis therapy which is commonly used simultaneously. It is recognized that a low blood potassium enhances digitalis action; in fact, in patients who, for one reason or another, have received an overdosage of digitalis, the administration of potassium salts is a recognized method of treatment. Cases of mild or moderate digitalis overdosage are much commoner today than they were a few years ago, both among patients referred to hospital for admission and among patients actually under treatment in the wards. The cause would appear to be this potentiation of digitalis action by the potassium-losing effects of chlorothiazide. It is important therefore, that the practitioner who is administering digitalis and chlorothiazide to any patient should periodically review the dosage of digitalis critically in the light of possible toxic effects. Where estimations of blood potassium are feasible, these should be done from time to time. A wise general measure is to give such patients a potassium supplement by mouth: say, potassium chloride 0·5 g. a day. It should further be remembered that chlorothiazide has a well-established action in potentiating the action of ganglion-blocking drugs, so that when using chlorothiazide the dose of mecamylamine (pentolinium) or pempidine may have to be halved. The dose of chlorothiazide is 0·5 g. twice daily, which should be given only for two or three days at a time in each week. When hydrochlorothiazide is used the dose is one-tenth of this: namely 50 mg. twice daily.

Drug treatment of hypertension.—(*Practitioner*, October, 1959).

All the ganglion-blocking agents so far in general use (hexamethonium compounds, pentolinium, mecamylamine and the latest addition, pempidine) share the disadvantage that reduction of pressure tends to be accompanied by undesirable side-effects referable to paralysis of the parasympathetic, either in the eye (accommodation) or the alimentary tract (dryness of the mouth and constipation of varying intensity).

It cannot be too strongly emphasized that the key to success in the use of hypotensive drugs lies in close clinical supervision of the individual patient and adjustment of the dosage of the drug to the response achieved. Further, a decision to start such therapy is not to be reached lightly since a patient with a moderate degree of hypertension may not require treatment of this type and may, in fact, be harmed by it. Certainly treatment should be instituted in patients with malignant hypertension, with a very high diastolic pressure (140 mm. Hg. or over), evidence of cardiovascular, renal or cerebral lesions, and marked changes in the retinæ. Treatment is also indicated in patients with high pressures of the order of 200/110 mm. Hg. or thereby, particularly if there is evidence of incipient breakdown, especially in the cardiovascular system. It is unwise to attempt to treat moderate degrees of hypertension (say, 160/100 mm. Hg.) in the absence of symptoms, and particularly in women around the menopause; such degrees of raised pressure may be sustained for many years with little or no disability and attempts to treat the blood pressure rather than the patient are ill advised. Finally it is wise for any individual doctor to confine himself to the use of a single drug of the series since, by selecting one of these drugs and using it intensively in a series of patients, he will come to know the drug and the response to be expected, and will achieve better over-all results than one who chops and changes from drug to drug as new proprietary remedies appear. One need hardly reiterate that the casual prescription of these potent remedies without close supervision of the effect produced in the individual patient is tantamount to malpractice. Such can only lead to entirely inefficient management of the hypertension and at a worst may lead to tragedy, either through unwarranted hypotensive effects or through severe complications, particularly intestinal ileus.

Isolated lymph-gland silicosis.—(*Sc. Med. Italica* (*Eng.*), *7*: 4, 1959).

A good deal of research work has been devoted so far to the alterations of mediastinal lymph-glands as determined by silicosis. Not all the researchers, however, are in agreement as to the frequency of or to the role played by these alterations within the general picture of the disease.

Guglielmo, Salvini and Cattaneo of the Pavia University have presented a report based on the findings obtained on 723 subjects presumably suffering from silicosis, who had been sent in for checking.

All of them were actually exposed to the risk of inhaling silicosis-including powders. They were submitted to X-ray examinations and their respiratory functions were assessed. Bronchological (bronchoscopy and bronchography) investigations or special X-ray examinations (tomography, angiocardiopneumography or kymography) were performed on many patients.

Twenty-eight cases from the group of 723 subjects with extensive alterations of a silicotic type affecting the hilum-mediastinal lymph glands were to be found. Of these, 17 evidenced no signs of silicotic alterations in pulmonary fields, while the remaining 11 exhibited only very slight lung lesions.

A description given by these patients was offered of the clinical and radiological picture whose respiratory-function tests showed that functional damage did exist to various and sometimes serious extents.

The possibility is stressed by the authors that in some patients the alterations determined by silicosis may be confined to the lymph glands (*isolated lymph gland silicosis*).

The importance of such a finding lies mainly in the complications which lymph gland alterations are bound to cause on account of their close anatomical proximity to the bronchi, pulmonary arteries, trachea and œsophagus, and the authors consider that the right place may be reversed in modern international classifications to silicotic lesions of mediastinal lymph glands, and that the position of patients suffering from isolated lymph-gland silicosis may be reconsidered in respect of their qualification for workers' insurance benefits.

SURGERY

Congenital hypertrophy.—(*Am. J. Surg.*, *96*: 654).

Congenital hypertrophy is defined as a condition in which there is overgrowth of one side of the body. The ætiology is unknown. Congenital hypertrophy varies so markedly in extent and severity that an almost infinite number of variations is possible.

Bryan, Lipscomb and Chatterton, in a review of reported cases found certain factors which occur often enough to have prognostic significance.

Mental deficiency occurs in 15 to 20 per cent of cases; the sex incidence is about equal. The right side is involved more frequently than the left. A lower extremity is involved more frequently than an upper extremity in the segmental cases.

Associated anomalies, such as syndactylism, abnormal growth of nails, nævi, hæmangiomas, telangiectasia, clubbed feet, hypospadias, congenital heart-disease, supernumerary nipples, polydactylism and synostosis, occur in 50 per cent of the cases; pathologic examinations have revealed true hypertrophy of all structures in the extremities. As this condition is progressive almost all of the patients have required orthopædic procedures to combat the unequal extremity lengths that develop.

Symptoms and patients' adjustment after subtotal gastrectomy.—(*Ann. Int. Med.*, July 1959).

One hundred unselected male patients who had had elective partial gastrectomy at the Cleveland Veterans Administration Hospital between 1951 and 1955 were studied before and one year after operation by Roth *et al* of Cleveland, Ohio.

The patients' ages ranged from 25 to 65; 64 were between 30 and 49.

Fifty-nine had not completed high school; none had been graduated from college. Seventy-one patients were married; 17 others were separated or divorced. Forty-eight patients were receiving a pension or were eligible for free medical care because their ulcers had been incurred in the military service. Most patients were in the lower income brackets, a few in the middle. They were cooks, taxi-drivers, truck-drivers, labourers, construction-workers, mill-hands, skilled workmen and salesmen; there was one internal revenue agent.

None of the operations in this group was done as an emergency. Fifty-nine patients with duodenal ulcer were operated upon because of recurring symptoms of ulcer. All of them had had at least one previous course of medical management in a hospital. Sixteen patients with duodenal ulcer were operated upon for pyloric obstruction, and 11 others because they had had hæmorrhages or perforations, or both, and it was feared that these might recur. Of the 12 patients with gastric ulcer, six were operated upon for recurrent ulcer, four because their ulcers failed to heal after several weeks of treatment, and two for pyloric obstruction. Two patients were operated upon for marginal ulcers which followed gastrojejunostomy. All patients had an estimated 75% resection with anastomosis by a modified Billroth II technique.

Recurrence of ulcer symptoms after gastric resection was not a problem in this group of patients. There were, however, other symptoms following operation that affected patients' work and leisure time activities. These symptoms have been mentioned by a few authors, but they have not been considered in many studies, as the results of gastrectomy have usually been evaluated in terms of relief of ulcer symptoms, frequency of dumping symptoms, and incidence of weight loss.

Fatigue and weakness were such important postgastrectomy symptoms that they often interfered with work or social activities. They appeared or increased after operation in 56 patients. These symptoms were referred to by a few other investigators, but their frequency was emphasized only by Warren and Meadows, who reported an incidence of 38·8%, and by Rauch, who reported 61%.

In general, patients worked more regularly after operation, and many had a larger take-home pay, even though some had taken lower paying jobs.

One hundred patients were studied before and one year after elective subtotal gastrectomy for peptic ulcer. The group as a whole worked more regularly after operation. Twenty-one patients did not work or did no steady work after operation, but most of these had had a poor work record before operation. About a third of all patients took lower paying jobs. Fatigue and weakness were the most important complaints after gastrectomy. Dumping symptoms *per se* were not a major cause of disability.

Cushing's syndrome: Clinical differential diagnosis and complications.—(*Ann. Int. Med.*, July 1959).

A series of 34 patients seen at the Lahey Clinic was recently reviewed. These cases were re-evaluated with particular emphasis on early symptoms and the problems they may cause in differential diagnosis, in the hope that a better understanding of the onset of the disease and its earlier recognition would result. At the time the 34 patients (seven males and 27 females) came to the Clinic, the disease was in a more advanced stage than that which we are attempting to delienate in this study. In general, their diagnostic symptoms and signs conformed with the data published on similar groups of patients with Cushing's syndrome.

Surgical confirmation was obtained in 27 cases (adrenal carcinoma, one; adrenocortical adenoma, five; adrenocortical hyperplasia, 19; adrenal tissue aberrant in the pancreas, two). The remaining seven were diagnosed by the characteristic clinical signs and laboratory findings when first seen on an average of five years from the onset of the disease.

Rapid clinical onset of Cushing's syndrome does not necessarily imply that the disease process, *per se*, is of rapid onset. In fact, the evidence indicates that the opposite is true. The formation of renal calculi, the occurrence of bleeding duodenal ulcers and previous hæmatologic changes and glycosuria in some of the cases all support the concept that the disease may be active while the patient is symptomless, either before the clinical onset or during a clinical remission. The term "rapid onset" is, then, purely clinical, but can be considered simply as a useful indication of diagnostic value.

The type of onset, course and manifestations of the disease at any given time will depend upon the amount and type of steroid secretion.

The advances made in recent years in the laboratory assessment of adrenocortical function and in the confirmation of hyperfunction by adrenal surgery and its results have rendered the differentiation of Cushing's sydrome, based on the classic manifestations of the fully developed condition, inadequate for making early diagnosis.

The initial symptoms in the 34 cases were re-evaluated with a view to promoting earlier recognition and diagnosis. Contrary to previously held opinions, clinical onset was found to be rapid in 71% of the cases, and it did not indicate the underlying ætiology.

The clinical differential diagnoses in the majority of cases do not conform with the standard textbook enumeration. Particular attention is paid to the occurrence of œdema and to its distribution; œdema is presumed to occur as a result of the tendency to hypo-proteinæmia, hypernatræmia and vascular fragility.

Evidence of activity of the disease before its *clinical* onset and during a remission is presented. This indicates the difficulty of classifying a patient in remission, and therefore of assessing the value of therapy, particularly such undramatic therapy as pituitary irradiation.

Peptic ulceration.—(*Practitioner*, October, 1959).

The routine use of the 'maximal histamine test,' which provides an accurate measure of the gastric secretion when the stomach is subjected to a maximum stimulus, has enabled us to compare one patient's gastric secretory activity with another, and to place a 'quantitative' value on our surgical objective.

Gastric ulcer is not associated with gastric hypersecretion, but is accompanied by mucosal degenerative changes loosely called gastritis. The ulcer is confined to the area of 'sick mucosa,' and the object of operation is to remove the vulnerable parts—the lesser curve and the antrum.

Duodenal ulcer, on the other hand, is almost invariably associated with gastric hypersecretion. Whether this is a response to overactivity of the normal stimuli or the result of an excessive amount of acid-producing tissue, it can be satisfactorily controlled in most instances both by excision of acid-bearing tissue (gastrectomy) or by eliminating the acid-evoking stimuli (vagotomy and antrectomy). Secretion studies of the acid production by the gastric remnant after standard gastrectomy have shown that the most that is accomplished by the operation is a reduction of secretion by 70 per cent of the pre-operative level. In a small group (7 to 10 per cent) of duodenal ulcer subjects, however, the pre-operative secretion is so gross that this degree of reduction is insufficient to guarantee against the development of post-operative stomal ulcer: in these patients a very high gastrectomy combined with vagotomy—or a gastrectomy, modified to remove all, or a larger part, of the fundus—is mandatory.

At first sight therefore, it seems a matter of individual preference which procedure is selected, although it must be conceded that the more conservative operations carry virtually no mortality, and have fewer late sequelæ

with the one exception of diarrhœa. If the recent suggestion that the diarrhœa is due to denervation of the cœliac plexus and that this can be avoided by leaving the appropriate division of the posterior vagus nerve is substantiated, it may be hard to justify the continued use of gastrectomy in the average case.

At the moment, surgical opinion already seems to be veering towards vagotomy and gastroenterostomy, but unquestionably the most important current development is the quantitative estimation of the patient's needs before submitting him to any form of surgery and the selection of a method which is certain to achieve the primary objective of operation, *i.e.* the permanent cure of the peptic ulcer disease. In the elective surgery of duodenal ulcer, the day of the 'blind' gastrectomy is mercifully over.

Treatment of cervical fractures of the femur.—(*Proc. Roy. Soc. Med.*, Oct. '59).

Mr. W. R. D. Mitchell, M.Ch. of Northampton, in a very instructive resume of the discussions on this subject has stated :—

My first point is a plea for early weight-bearing. Most of these patients are over 70 years of age and six or twelve weeks off their feet leads to other complications. Unfortunately the neck of the femur is angulated in relation to the shaft and as in the angulated fracture of the tibia weight-bearing leads to non-union. By a suitable pinning technique, however, varus can be reduced or eliminated and the intact calcar femorale of the shaft brought medial to the point of weight-bearing on the femoral head. Weight-bearing now results in impaction which we are all agreed is desirable, and I believe it is most important in the first three weeks following fracture.

My technique now is to reduce into a valgus position if possible and impact heavily before inserting the guide wire when the femur is exposed. A low nail resting on the calcar femorale is inserted, but if it has not been possible to reduce the fracture so that the calcar femorale of the shaft lies medial to the point of weight-bearing of the head, a subtrochanteric angulation osteotomy is done after a wide-angle Jewett nail plate has been inserted low in the neck. After operation the patient is got out of bed as soon as possible and is taught to stand on a wide base holding on to the end of the bed and swaying from side to side. In a day or two walking with full weight-bearing is encouraged, at first with a wide base.

In our series, avascular necrosis in a group treated by this method was about 4% compared with 9·4% in the rest, but the group was too small to draw conclusions.

In our analysis we tried to reconstruct the spatial relationships of the fractured surfaces. We have the impression that about 25% of cervical fractures fell into a group where there was appreciable "coning out" of the femoral neck. It was in this group where we encountered most trouble.

I suggest that early ambulation with a low-angle nail as described by Mr. R. S. Garden gives better and not worse results than treatment where weight-bearing is delayed. More frequent use of the angulation osteotomy for certain types of fracture is advocated.

Surgical shock.—(*Practitioner*, October 1959).

The steady increase in the number of accidents, and at all ages, continues to highlight the gaps in our knowledge of traumatic or surgical shock, but there have been some advances in our concepts of the fundamental morbid physiology as well as in our therapeutic management.

Since the last war, emphasis has rightly been placed upon loss of circulating blood-volume as the main cause of the peripheral circulatory failure in shock ; and restoration of the circulating volume is the most important object of our therapy. It is generally appreciated, however, that some patients fail to respond to energetic volume replacement even by blood ; and some of the causes of this are now known. Prominent among them are inadequate transfusion through underassessment of the degree of blood loss, the presence of severe muscle damage, and massive infection at the site of injury.

Hypoxia :—Less well recognized is the adverse influence of hypoxia, which may be a consequence of blood-loss but, that apart, is particularly important in injuries to the chest wall, such as multiple rib fractures with 'paradoxical' respiration, and in injuries to the lung itself. Even without associated blood-loss, the hypoxic patient is hypotensive and cyanosed, and the peripheral circulation is gravely reduced. Acute hypoxia may also contribute to post-operative shock when there is interference with pulmonary ventilation, or reduction in the gas exchange surfaces as a result of chronic bronchitis and emphysema, or when there has been pre-existing anæmia with consequent shortage of hæmoglobin for the transport of oxygen. The submission of elderly patients to extensive operations has of late years emphasized this hazard, and encouraged measures for its prevention and treatment.

Tracheostomy :—In the elderly, in whom the pulmonary ventilating surface is often reduced, and in the unconscious, in whom the natural elimination of bronchial secretions is impossible, the insertion of a temporary tracheostomy tube (tracheostomy) may be preferable to very frequent bronchoscopy, and indeed may be life-saving. A tracheostomy is now often established to prevent chest complications in elderly patients with respiratory disease undergoing elective surgery ; it reduces the respiratory dead space by bypassing the column of air in the upper respiratory passage, and it provides an easy and effective means for the administration of a high concentration of oxygen—if needs be by positive pressure respirator—and for the regular evacuation of secretion.

OTOLARYNGOLOGY

Meniere's syndrome.—(*E. E. N. and Throat Monthly, 37 :* 12, 1958).

For the treatment of a major attack of Meniere's syndrome, atropine sulphate gr. 1/75 in many instances is effective. Dramamine, in treating the unsteadiness that follows many of the major attacks has been of limited benefit, and some patients may experience a dry throat, nausea and a feeling of apprehension following its use. Dramamine-D seems to have fewer side-effects. Sodium bromide as recommended by Barany almost fifty years ago is tolerated quite well, and the patients seem to prefer it to the newer and much lauded drugs. Patients are always warned as to its prolonged use and the possibility of allergic reactions.

Histamine, given intravenously for several successive days, is invaluable in the treatment of major attacks and is one of the most lasting forms of treatment. Section of the eighth nerve is rarely performed these days, but other operations are being performed that destroy the function of the inner ear. One is electrocoagulation of the labyrinth, and another avulsion of the horizontal membranous semicircular canal. It is difficult to conceive a situation arising that justifies the destruction of the inner ear. If the patient lives long enough, bilateral nerve deafness develops, and no one can be sure which side causes the vertigo. If unilateral deafness is present, the vertigo may come from the opposite ear, which may be in the earliest stage of deafness and as yet not perceptible.

Sitting position for peroral endoscopies.—(*E.E.N. and Throat Monthly, 87 :* 12, 1958).

Lately, renewed interest has become apparent in the performance of bronchoscopies in other than the customary recumbent position. The sitting position in particular, of course, is not of recent vintage. It is designed for adults under topical anæsthesia. No head or shoulder-holder is required.

The patient feels, and actually is, less restrained, and consequently, his apprehension is decreased, and more persons can be treated on an out-patient basis. During the procedure, they can be turned with greater ease for themselves by the physician. This is of importance, especially in dyspnœic persons.

After premedication with Seconal grs. 1½ (0·1 gram) orally, one hour before operation, and Morphine sulphate grs. ⅓ (0·01 gram) together with atropine sulphate grs. (1/150 (0·0004 gram) hypodermically, 20 minutes before the procedure, topical anæsthesia is effected in the conventional manner. For mnemonic reasons we prefer 5 cc. of a 2% cocaine sulphate solution, followed by the fractionated instillation of 2 cc. of a 5% cocaine sulphate solution into larynx, trachea, and bronchi. (¼ and ½% of Pontocaine solution may be substituted). The patient sits in a low chair, preferably of the Bruenings type. The operator, standing behind the patient, introduces the bronchoscope directly into the glottis.

Patients having undergone bronchoscopies in the usual supine position and needing repeated examinations, usually request spontaneously to be treated, "in the chair," once they have been exposed to it. Resident physicians, trained in both methods, also prefer the sitting position because of the ease and comfort for both patient and operator.

The advantages of the sitting position hold true also for the performance of direct laryngoscopy with the Jackson laryngoscope and some of its modifications. It may be recalled here that Haslinger's directoscope is equipped for laryngoscopy in either the recumbent or sitting position. (A small metal ring or cylinder may be soldered to the side of its epiglottic blade. This serves to hold a light carrier of the Jackson type, thus providing ample illumination).

For œsophagoscopy, too, the sitting position contributes greatly to the comfort of the patient.

Tonsillectomy and allergy.—(*N.Y. State J. Med.*, 1-8-1959).

Tonsillectomy is a very frequently performed operation and constitutes 25 to 30 per cent of all surgical operations. The indications for tonsillectomy have been accepted as being similar in allergic and nonallergic children. However, too often tonsillectomy is performed with disastrous results because time was not taken to diagnose definitely the complaints as non-allergic.

The case records of 70 patients who had tonsillectomies were studied. Fifty of these patients manifested some type of allergy prior to tonsillectomy, and 20 were clinically non-allergic prior to tonsillectomy. Only 2 pre-operatively allergic patients showed post-operative improvement, and these were under allergic management prior to and following the tonsillectomy.

Of the 20 who gave no clinical evidence of allergy prior to their tonsillectomies, all developed some manifestations of allergy following surgery. Of the 70 cases in this series, 16 developed asthma following tonsillectomy, and the 13 pre-operative asthmatic patients were unchanged postoperatively.

Asthma and nasal allergy *per se* are no indications for tonsillectomy. Tonsillectomy not only will not cure allergic diseases but may also induce new allergic manifestations in patients who are already allergic. The continued presence of neutrophils in the respiratory secretions is indicative of an infective process alone or superimposed on an allergic reaction of the tissues. The greater the eosinophilia in these secretions, the greater the possibility that one is dealing with an allergic reaction and surgery should not be done or should be postponed until the allergy is under control.

In one ear.—(*Am. College of Hospital Administrators*, Chicago, Feb. 7, 1959).

Our minds work faster than most people talk. This is one reason that most people (including doctors' patients) remember only about half of what they hear. And most forget a third of that information within 8 hours. Minds wander while someone is talking, unless you train yourself to listen *and* remember.

DERMATOLOGY

The mucocutaneous lesions of Reiter's syndrome.—(*Annals of Int. Medicine*, July, 1959).

In recent years we have observed a number of patients with Reiter's syndrome. Although the triad of urethritis, conjunctivitis and arthritis is now rather well known, the high *incidence of mucocutaneous lesions is not generally appreciated.* These lesions, in our experience, are practically diagnostic, and occur very frequently in the endemic or venereal type of the disease. In fact, this type of Reiter's syndrome might better be considered a tetrad, consisting in its complete form of urethritis, conjunctivitis, arthritis and mucocutaneous lesions. It is the purpose of this paper to point out the character and frequency of the various mucocutaneous lesions, and also to emphasize their role in establishing a definite diagnosis. This is important, since Reiter's syndrome follows a fairly characteristic course, is self-limiting, and carries a much better prognosis than do most other arthritides.

The incidence of muco-cutaneous lesions in 38 patients with Reiter's syndrome treated during a 10-year period at the Hines Veterans Administration Hospital was found to be 80%.

In the group of 38 patients fulfilling strict criteria, mucous membranes of the genitalia were affected in 30; mucous membranes of the mouth, pharynx and tongue were affected in 14 of these 30. The skin was affected in 11 of the group. In no instance was the skin alone involved, and in no patient were oral mucous membrane lesions an isolated finding.

Perimeatal erosions and balanitis circinata are probably of identical nature, and were present in all 30 of the 38 patients with mucosal lesions. Twenty-three had both lesions; four of the remaining seven had perimeatal erosions, while the other three had balanitis circinata alone. The perimeatal lesions are superficial dark red erosions adjacent to, or partially to completely encircling, the external urinary meatus. They are painless, and are not covered by an exudate or membrane but occasionally by thin, loosely adherent, yellow to brown scales.

The high incidence of mucous membrane lesions in patients with Reiter's syndrome (80% in our series of 38 patients) is not generally appreciated. About half of the patients with painless genital lesions also have characteristic painless oral mucosal lesions. The keratosis of Reiter's syndrome, present in 11 of 38 patients (an incidence of about 30%), is, we believe, identical with what has been called keratodermia blennorrhagica. These lesions are uninfluenced by antibiotics or corticosteroids. It is our opinion that mucocutaneous lesions may be as important in establishing the diagnosis of Reiter's syndrome as is nonspecific urethritis or conjunctivitis.

Dermographism or factitious urticaria.—(*Br. J. Clin. Practice*, July 1959).

It is produced by light stroking of the skin with a blunt instrument and the noticeable severe irritation which accompanies other forms of urticaria is usually absent. Generally investigations into the history leave no clue to a toxic cause acting either within or outside the body, and skin testing gives unhelpful or bizarre results.

Then we have to fall back upon nervous causation. In some cases the patient is truly tense, worried or even agitated, when help may be obtained from a sympathetic psychiatrist. In others no such precipitating cause can be incriminated. It is for these that symptomatic treatment must be used to its full extent. *Locally*, loose fitting cool clothing and alkaline baths, using sodium carbonate two breakfast cupfuls to a 30-gallon bath, are helpful. Soothing local applications

include a lotion of carbolic acid 1 to 50, lead lotion and calamine lotion with phenol or tar. Hydrocortisone topically will also give symptomatic relief, and the most cooling and economical preparation is 'Cortril' ærosol spray (Pfizer). Local antihistamine preparations may help, but their use is better avoided as they may cause skin sensitization. Orally, antihistamines are obviously the treatment of choice. Too frequently they are given in too small a dosage. Providing those with hypnotic side-effects are avoided, the dosage should be steadily increased until the condition is suppressed. Often this means a three—or four-fold increase over the usual oral dosage. If this fails, another antihistamine chemically unrelated should be tried, as ringing the changes is often the key to success. Occasionally when all else fails a severe case may require oral steroids, but they should be used with caution. When suppression has been achieved, the drug employed should be withdrawn very slowly over a period of 1 to 2 months.

Griseofulvin—Wonder drug of dermatology.—(*Jour. Louis. Med. Soc.*, Aug. 1959).

This is the first orally administered drug to be effective against certain common dermatomycoses. It is *not* effective in the diseases caused by the yeast-like organisms. Dr. Gæthe of New Orleans enters a serious plea for the judicious use of an extremely valuable and important drug. Care in the use of griseofulvin can develop for it either an excellent reputation, which it deserves, or it can become a "black sheep" for both physician and patient. The efficacy of griseofulvin has, at present, been established for a definite group of the pathogenic fungi.

Griseofulvin, which was isolated in 1939, by Oxford *et al* is a fermentation product of three species of penicillium, namely *P. patulum, P. griseofulvin*, and *P. janczewski*. Blank and Roth, in March 1959, reported the results of the use of griseofulvin in human dermatomycoses.

The drug has been found to be effective in diseases caused by :

1. *Trichophyton rubrum*, the causative organism in certain chronic, recalcitrant cases of tinea corporis and onychomycosis.
2. *Microsporon audouini*, the cause of the human variety of tinea capitis.
3. *Trichophyton mentagrophytes*, a common cause of tinea cruris and tinea pedis.
4. *Microsporon canis*, the cause of the animal variety of tinea capitis.
5. *Epidermophyton floccosum*, a frequent cause of tinea cruris and also a cause of tinea of the nails, and the feet.
6. *Microsporon gypseum*, which can involve hair and skin.
7. *Trichophyton tonsurans*, the cause of "black dot" tinea capitis, which does not fluoresce under Wood light examination.
8. *Trichophyton megnini* and *Trichophyton gallinae* of this rosaceum group of *Trichophyton violaceum*. These can involve hair, skin, and nails.
9. *Trichophyton* verrucosum in calves.

It must be remembered that the trichophyton group can involve hair, skin and nails ; the microsporon group can involve hair and skin and the epidermophyton group, skin and nails.

Griseofulvin is *not* effective in tinea versicolor ; Monilia (yeast) infections ; cryptococcosis ; sporotrichosis ; chromoblastomycosis ; blastomycosis and histoplasmosis.

The dosage schedule for infections of the glabrous skin varies from 750 to 1000 mg. daily. which is usually given as the 250 mg. tablet four times daily. In children, 500 to 750 mg. per day for an average fifty pound child seems to be adequate. In some instances the daily dose has been given all at one time. The ideal schedule has yet to be determined.

The side-effects reported so far include :—

1. Headaches and abdominal distress which disappear spontaneously without stopping the drug.
2. Fatigue, which is relieved after the second week of therapy without discontinuing the drug.
3. Diarrhœa of the mildest type.
4. Drug eruptions which disappear on stopping the drug.
5. Cytological effects about which there is no conclusive proof that the sperm count is affected. Testicular biopsies are done at certain intervals during administration of the drug.

NEWS AND NOTES

The First All-Asian Congress of Pædiatrics, New Delhi

January 2 to January 6, 1961

The Congress is sponsored by the *Indian Paediatric Society* and the *Association of Paediatricians* with the approval of the Government of India. Pædiatricians from all countries of Asia are invited to participate in the Congress as individuals or as representatives of the National Paediatric Societies, Governments, or Universities. The official languages of the Congress will be Chinese, English, Hindi, Japanese and Russian.

Registration of members must be notified on or before *April 30, 1960*.

Titles of papers, exhibits, films, etc. with an abstract of not more than 200 words should be sent to the Secretary General before that date. Papers accepted for inclusion will be communicated to the participants by *June 30, 1960*. Delegation fees shall be paid in Rupees, U.S. dollars or sterling and cheques drawn in the name of *"First All Asian Congress of Paediatrics"* and crossed.

Membership forms and other particulars can be had from : The Secretary General, The First All Asian Congress of Pædiatrics, The Institute of Child Health, 95, Dilkhusa St., Calcutta-17, India.

Manufacture of Drugs

Soviet Aid for Projects

80 million rouble credit offered

Following a credit offer of eighty million roubles from the Soviet Government in June last year, a team of Soviet experts visited India to finalise the scope of different drug projects to be established with their co-operation. The team proposed the establishment of five projects for the manufacture of drugs and pharmaceuticals.

During the visit of Mr. Manubhai Shah to the U.S.S.R. in May this year, an agreement was signed between the two Governments for co-operation in establishing these five State enterprises. In pursuance of this agreement, a contract was signed in September, 1959, with Messrs. Technoexport of Moscow for technical assistance in selecting construction sites and collecting initial data necessary for designing the five drug projects. Some members of the team of Soviet experts have already arrived in India and others are expected shortly for this purpose.

Production from these units expected to be reached by 1964 or 1965 will make the country more or less self-sufficient in respect of all the important and essential basic drugs and medicines. The value of production of the five units is expected to be between Rs. 35 crores and Rs. 40 crores per year.

The total capital investment on these five projects would be about Rs. 28·7 crores. With working capital, cost of townships, etc., the total outlay may go up to Rs. 35 to Rs. 40 crores.

Efficacy of Indian Herb, *Punarnava*

India has started exporting *Punarnava*, a herb highly efficacious in curing eye-diseases. The first consignment of 12 packets was shipped for America on October 27. Africa, Malaya, Pakistan, Ceylon etc., are already importing it. This is the first Ayurvedic preparation being used with confidence in the Western countries and the demand it has created shows that it will prove a good

foreign-exchange earner for India. Its amazing effect in restoration of lost eye-sight in both *plus* and *minus* abnormalcies regarded incurable so far, has wonder-struck eye-specialists in India and abroad.

Pure Food Law

The working of the Prevention of Food Adulteration Act was reviewed recently at a conference of officials and trade interests at the Office of the Director of Public Health, Madras, Dr. N. Parthasarathi, the Director, presiding. Representatives of ghee, butter, and oil merchants and hotel-keepers, the Corporation Health Officer, the Government Analyst, Guindy, the Corporation Public Analyst, the State Marketing Officer and officials of the Health Department attended.

The discussions related to the standards to be ensured in respect of ghee, butter, edible oils, tea, coffee and other foodstuffs.

Madras Medical Register, 1959 Publication

Registered medical practitioners under the Madras Medical Registration Act, 1914 are requested to intimate their current address urgently.

111, Mount Road, Madras-6.
28th Nov., 1959.

(Sd.) K. K. SHENOI,
Registrar, Madras Medical Council.

OBITUARY

Dr. S. T. Narasimhan

We have lost another eminent doctor of Madras in November last,—another victim to a heart attack in the person of Dr. S.T. Narasimhan, the pioneer in brain surgery in India. He was the first to conceive the idea in 1945 of specializing in the particular and difficult field of surgery and was also the first Indian to specialize in Electroencephalography and to bring the apparatus to India and popularize its use. He was in fact the father of E.E.C. in the country and to him goes the credit of having helped in the starting of the Neurosurgery Department in the Madras General Hospital, and made it to rank among the foremost neurological centres in India and Dr. Narasimhan was a great and good doctor and a most genial and popular figure in the City. In his premature death at Bangalore on Saturday the 29th November 1959 at the age of 49, India has lost a pioneer. We offer our heartfelt condolences to his aged mother, wife and the two daughters he has left behind besides numerous friends and grateful patients to bemoan his loss.

Dr. P. L. Deshmukh

We deeply regret to record the death at Poona on 8th October 1959 at the early age of 55 of yet another eminent physician of India, Shri Dr. P. L. Deshmukh, due to cerebral hæmorrhage. As a brilliant medical student he won several scholarships and gold medals. After ten years of practice he went to England for post-graduate studies and then resumed work as a physician. He soon rose to fame as a successful practitioner and research worker. He was a regular contributor to the Antiseptic, and his valuable contributions related mostly to cardiology. A successful heart specialist and a sound physician, he was also Hon. Physician to the Sassoon Hospitals and Hon. Lecturer in Medicine at the B.J. Medical College, Poona; he also worked at the T.B. Sanatorium at Telegaon as a tuberculosis specialist.

Of a pious and god-fearing disposition, and suave manners he endeared himself to one and all by his uniform courtesy in his social contacts and in public life. He had over 100 original scientific articles to his credit, which were contributed to various Indian and foreign journals.

We offer our heartfelt sympathy to Mrs. S. Deshmukh and the other members of his family, in their sad bereavement.

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THE ANTISEPTIC

Vol. 57, No. 5, May, 1960

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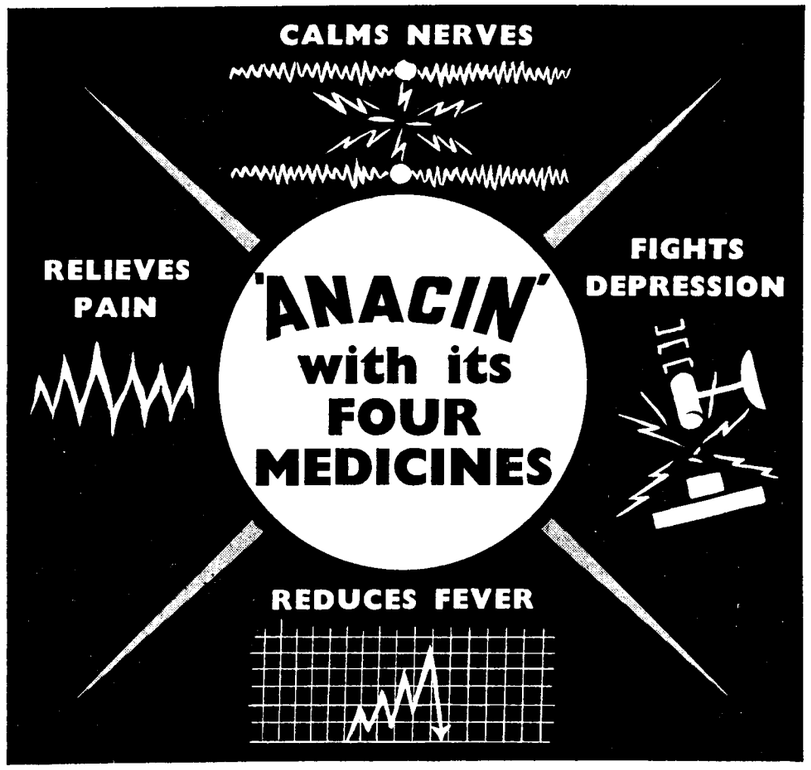

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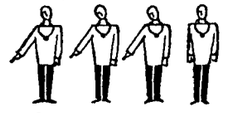

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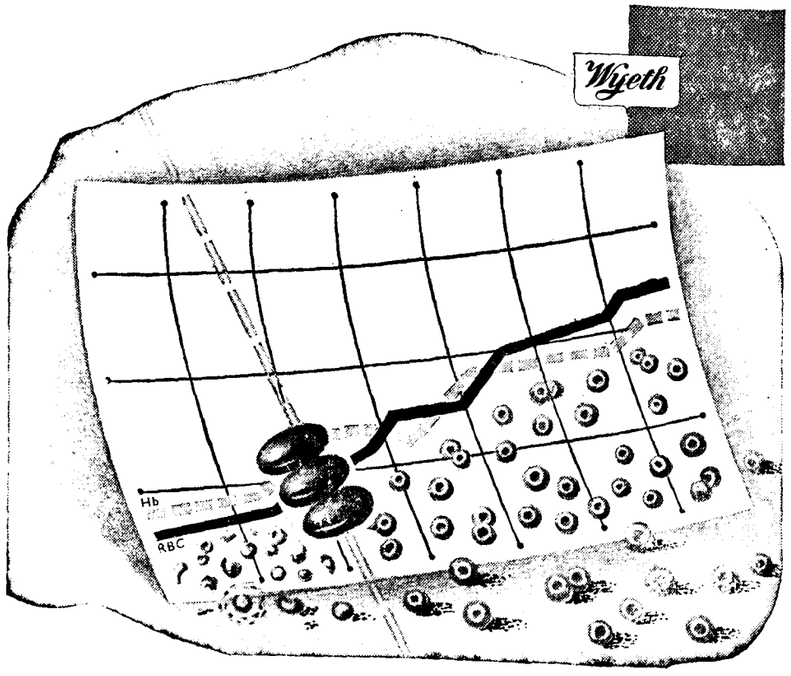

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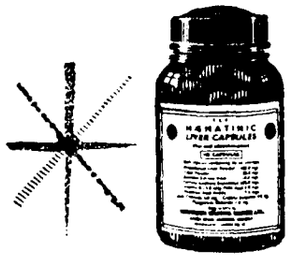

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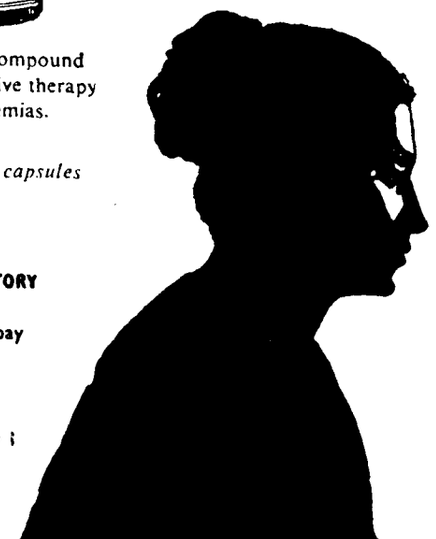

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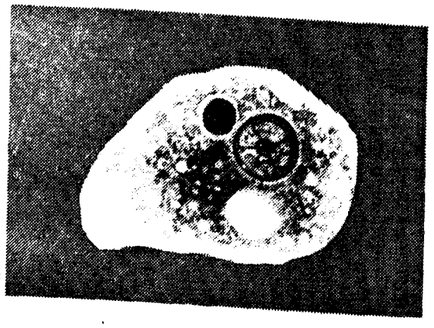

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References 1 Sodeman, W.A., and Beaver, P. C. : *Am. Jour. Med., 12 : 440,* Apr., 1952
2 Zavala, D. C., and Hamilton, H. E. : *Ann. Int. Med., 36 : 110,* Jan., 1952
3 Conan, N. J. : *Am. Jour. Med., 6 : 309,* Mar., 1949

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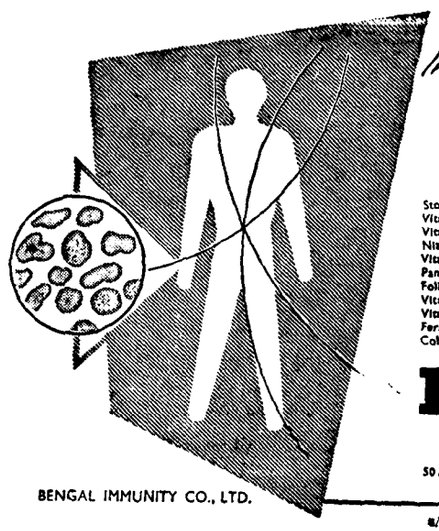

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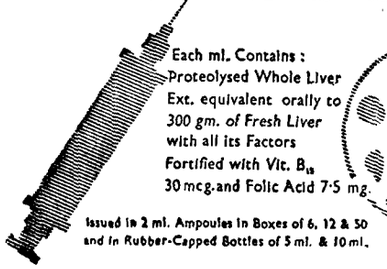

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Original Articles

MANAGEMENT OF COMMON FRACTURES IN GENERAL PRACTICE*

C. VYAGHRESWARUDU, M.B., M.S., M.S. (ortho.), F.I.C.S.,
Lecturer in Orthopaedics, Andhra Medical College,
King George Hospital, Visakhapatnam
AND
B. VENKATA RAO, M.B., B.S.

FRACTURES are of such common and everyday occurrence in every place that the general practitioner in the locality has frequently to deal with such cases. He should therefore, be quite familiar with the methods to be adopted in dealing with the various types of fractures and dislocations etc. Specialist assistance and X-ray facilities for diagnostic and treatment purposes are usually not available for 90 per cent of cases, for various reasons; distance, finance, proper advice etc. It is therefore, all the more essential that all practitioners of the allopathic system of medicine, those in rural, and semi-urban areas particularly, should have a sound knowledge of this problem of dealing with fractures of various kinds in different parts of the human skeletal system.

It is the purpose of this paper to describe for the benefit of brother practitioners, the simple, efficient and successful methods found useful by us in our experience.

Fracture of the clavicle.—The commonest site for this fracture is at the junction of the outer third and the inner two thirds. There is a loss of function of the affected extremity, local swelling, pain, tenderness and deformity and so the

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diagnosis is easy. The help of skiagrams in these cases is not necessary, and they can be managed even in rural places without risk of any complications.

The outer fragment is displaced downwards, inwards, and forwards with an over-riding of the fragments. The displacement is corrected by a properly applied figure of '8' bandage (*see* Fig. 1) over both the shoulders and the back of the chest with a pad of cotton wool in each axilla. When applying the bandage, care should be taken to apply it over the outer fragment and *not* over the fracture and with each turn of the bandage the shoulder is pulled backwards and outwards. It will be necessary to apply an additional bandage during the next two days in order to maintain the reduction. A cuff and collar, are given to the affected arm. An alternative method is to ask the patient to lie on his back, over a sand-bag placed between the shoulders for 10 days, by which time the fracture unites and active movements of the shoulder are then commenced. When there is no displacement or angulation of the fragments the fracture is immobilized by strips of adhesive straps applied from below the spine of the scapula to the chest (*see* Fig. 2). A cuff and collar are given to be kept for two weeks.

Fig. 1. Method of application of figure of '8' bandage.

Fig. 2. Immobilization of fracture clavicle without displacement by adhesive strapping.

There will be some over-riding of fragments and it will not be possible to correct it completely, whichever method we may adopt. This should not worry either the practitioner or the patient as the ultimate function will always be good. Another snag is, the presence of a lump of bone at the site of the fracture. This will however, disappear in the course of a few months and the patient should be assured on this point.

Fracture of the outer end of the clavicle:—(*see* Figs. 3, 4, 5) There is local tenderness as well as deformity. The displacement is greater in this case and the treatment is as for Acromio-clavicular dislocation (*vide infra*).

Fig. 3. Clinical photo of fracture of outer end of clavicle showing stepping.

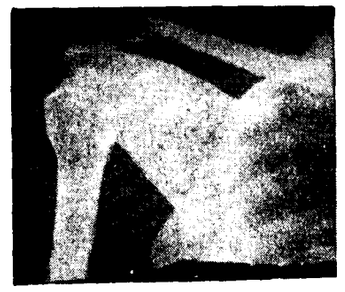


Fig. 4. X-ray of the case in *Fig. 3*.

Fracture of the inner end of the clavicle:—This fracture is treated by strapping of the fragments by adhesive plaster and applying a cuff and collar to the arm for two weeks.

Fig. 5. Method of reduction and immobilization of fracture of outer end of the clavicle. Method of treatment is the same for acromio-clavicular dislocation.

Fractures in children. (*see* Fig. 6).—In children the fracture is of the green-stick variety, without displacement. In this case strapping and cuff and collar will form the treatment of choice. Even when the fracture is complete and over-riding of the fragments is present, the fracture unites rapidly, with the same treatment and without leaving any disability. The treatment lasts for two weeks, after which, active exercises are advised. A constant source of worry to the parents, is the presence of a lump at the site of the fracture. They should be assured, that the lump is no disability and will disappear in the course of a few months.

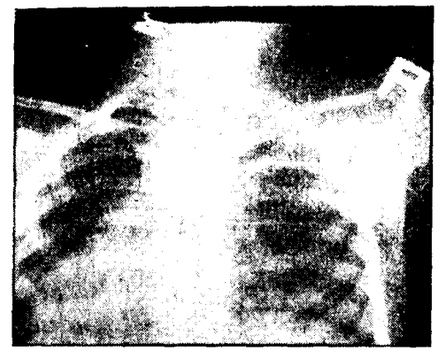


Fig. 6. X-ray showing the greenstick fracture of clavicle without displacement.

Fracture of the humerus.—*Fracture of the neck of the humerus* :—The fracture results from a fall on the outstretched hand. Three types are described (*see* Figs. 7, 8, 9) : (1) Contusion-crack fracture of the greater tuberosity ; (2) abduction fracture and (3) adduction fracture.

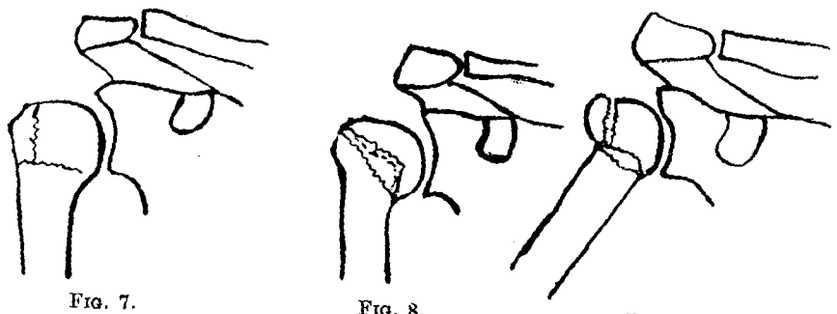


Fig. 7. Fig. 8. Fig. 9.

Diagrams showing the three types of fractures of the neck of the humerus.

Diagnosis :—Pain, tenderness, swelling and loss of function are the cardinal signs of this fracture. Ecchymosis if present is a sure sign. It may be distinguished from a dislocation : (1) by the absence of ecchymosis; (2) by a flattening of the shoulder and an abnormal prominence in front of the shoulder and (3) by feeling the head in front of the shoulder. This type of fracture can be diagnosed only by X-ray, to locate the displacement and adopt proper treatment.

Contusion-crack fracture :—Treatment of this fracture is very simple, as there is no displacement. Immobilization by cuff and collar or slab and bandage is enough and should be maintained for 10 days, after which active exercises must be practised to secure complete movements.

Fig. 10. X ray showing abduction type of fracture.

Abduction fractures :—(*see* Fig. 10) The line of fracture is low and the lower fragment is abducted. The fracture is impacted on its outer side, and angulated inwards. The lower fragment may be abducted from 10° to a right angle. When abduction is minimal, reduction is unnecessary. A pad of cotton wool placed in the axilla, with the elbow flexed and the extremity immobilized to the chest by a bandage for about 3 weeks, is all that is necessary. Active exercises must be started soon after the bandage is removed.

When however, the abduction is greater, manipulative reduction is necessary because, if left untreated, the arm cannot be brought to the side but will stick out and block while walking in a crowd or while passing through a door-way. The reduction is done under general anæsthesia (intravenous pentothal sodium) with the patient lying on the back ; an assistant applies counter-traction in the axilla and traction is applied at the elbow in flexion along the long axis of the arm, in the position in which the limb is lying. Muscle-spasm is gradually overcome and the fracture is disimpacted. The arm is brought down to the chest and immobilized, along the side. When the arm is brought down to the side, the upper fragment will be in alignment with the lower and is brought down along with it, having got disimpacted. After 3 weeks of such immobilization, active exercises must be commenced, no massage or passive stretching being allowed. In all these cases the only disability is the limitation of hyperabduction, but this is compensated by scapular movements and the patient will not suffer any disability.

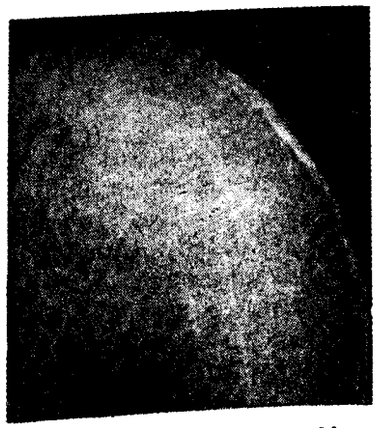


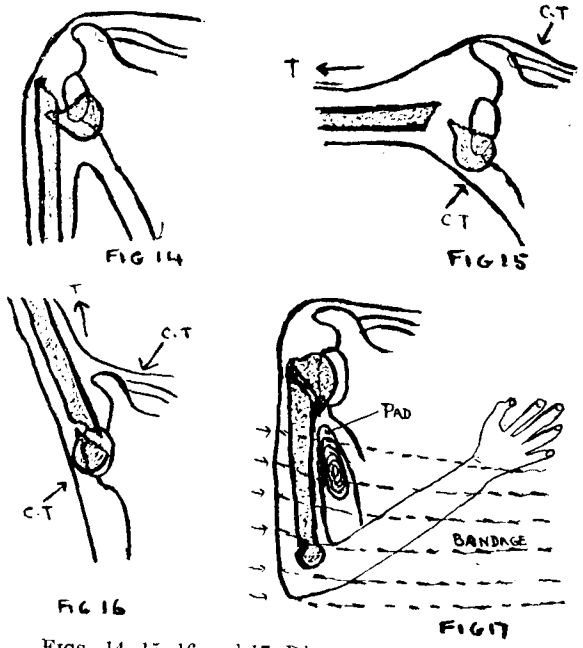
Fig. 11. X-ray showing adduction type of fracture with impaction.

Adduction fractures—Impacted fractures (*see* Fig. 11) :—The site of fracture is high, impacted on the inner side and angulated on the outer side. The lower fragment is adducted in relation to the upper. If untreated, a limitation of abduction will result, proportionate to the adduction-deformity of the lower fragment. The disability is compensated

Fig. 12. X-ray showing unimpacted adduction fracture. Head of humerus is rotated in its transverse axis lying upside down.

Fig. 13. Post-reduction X-ray of case in *Fig. 12*, showing reduction, which has been accepted as satisfactory.

by scapular movements and hyper-abduction is limited in all these cases. If the adduction is more than 20 degrees, disimpaction is done under general anæsthesia and the arm is later immobilized by the side of the chest. Active movements should be started at the end of 3 weeks in order to regain the shoulder movements.



Figs. 14, 15, 16 and 17. Diagrams showing method of reducing unimpacted adduction fracture.

Unimpacted fractures (*see* Figs. 12 and 13 on p. 349) :—Sometimes, the violence is such that there is no impaction of the fragments, the head being rotated 90° in its transverse axis and lying upside down in the joint and the lower fragment lies on the non-articular side of the head and is pulled up. Reduction of this fracture (*see* Figs. 14, 15, 16 and 17 *alongside*) is achieved by applying traction on the long axis of the arm and the arm is hyperabducted and fully and externally rotated; the lower fragment is now in alignment with the head, the traction is released so that the fragments engage. The arm is slowly brought down to the side and immobilized. Complicated cases should be referred to the specialist but the majority of them can be managed by the general practitioner.

By and large, the secret of success in the treatment of shoulder fractures, is early institution of active exercises. The shoulder gets stiff due to periarthritis in old age and if immobilized for long, this is sure to occur. Active exercises, such as pulling an overhead rope to improve abduction will greatly improve movements.

Fracture of the shaft of the humerus :—This may result from direct or indirect injury. Diagnosis is easy as all the signs of fracture will be present. There is no need to have an X-ray picture taken for diagnosis or for treatment.

The line of fracture is either transverse, oblique or spiral, and the site of fracture may be above or below the deltoid

(*see* Figs. 18 and 19); so the displacement of the lower fragment varies with the site of fracture. The main points to remember in

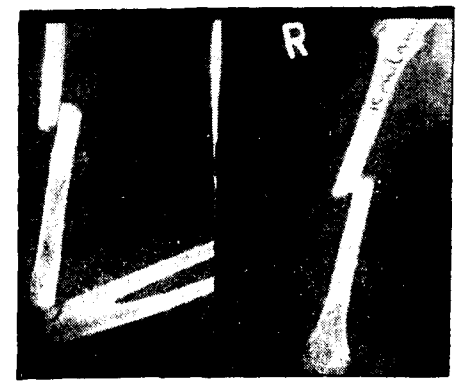


Fig. 18. X-ray showing transverse fracture of the humerus above the deltoid insertion.

Fig. 19. X-ray showing the reduction of fracture in *Fig. 18*.

dealing with this condition are :—(1) the fracture unites rapidly owing to the rich blood supply even when immobilization is not adequate; (2) angulation and rotational deformities should be corrected; (3) apposition of the fragments amounting to half the transverse diameter of even $\frac{1}{3}$ of the shaft is acceptable (*see* Fig. 25, p. 352); (4) end to end apposition though desirable is not essential, as slight shortening following union is not noticed in the upper limb, and will not cause any disability and (5) injuries to the radial nerve must be remembered and tested for, as otherwise serious disability will result.

Manipulative reduction :—An attempt must be made to reduce all transverse fractures (*see* Figs. 20, 21 and 22). The patient sits on a stool, with a cuff and

Fig. 20.

Figs. 20, 21 and 22. X-rays of fracture of humerus below the deltoid insertion before and after reduction by angulating the fragments and final X-ray showing the callus.

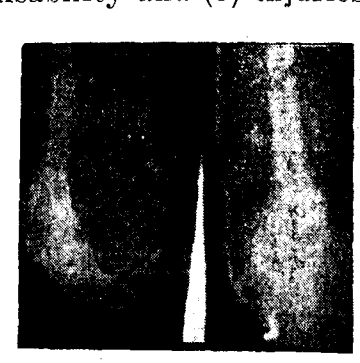


Fig. 21.

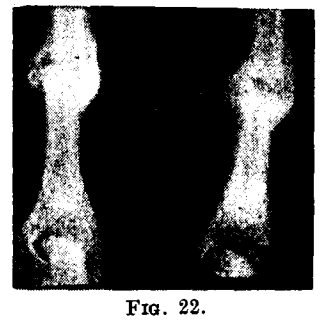


Fig. 22.

collar to suspend the flexed elbow. The arm is held in slight abduction and traction is applied on the anterior aspect of the forearm by an assistant; this reduces the angulation deformity. As the traction is being maintained the over-riding of fragments are corrected by the doctor who pushes the fragments into position. If not successful it can be corrected by angulating and hitching the fragments by straightening (*see* Figs. 23, 24, 25 and 26). Even if the fragments are not hitched the fracture unites without any disability. A 'U' shaped slab applied to fix the fragments in position, is kept in position for 4 weeks.

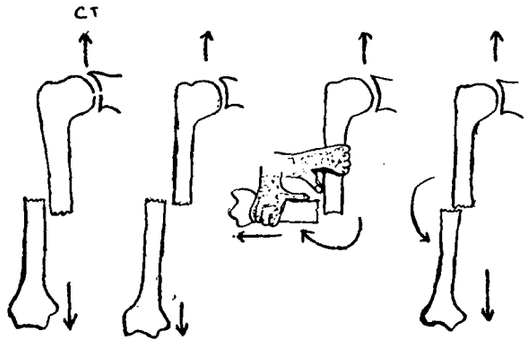


Fig. 23. Fig. 24. Fig. 25 Fig. 26

Figs. 23, 24, 25 and 26. Diagrams showing method of hitching the fragments by angulating them when the line of fracture is transeverse.

If plaster of paris is not available, the fracture may be well immobilized by three well-padded first-aid splints applied in front, laterally, and behind, the inner aspect being left alone, the splints are kept together by a bandage and a cuff and collar given.

If over-riding of fragments is present inspite of the manipulation, there is nothing to worry about, as union will always occur even in that position. The shortening that occurs will not affect the upper limb, as it will not be visible and the function will not suffer in any way because of the shortening. So neither the doctor nor the patient need worry about the over-riding of fragments seen in the X-rays.

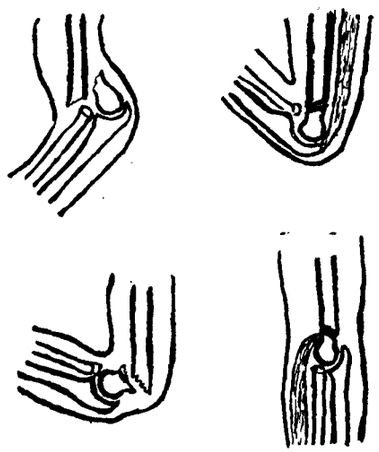


Fig. 27. Diagrams showing the Extension and Flexion type of supra-condylar fractures.

Supra-condylar fracture of the humerus.—*In children* :-This is the commonest fracture in children, and is of 2 types (*see* Fig. 27) :—(1) the extension type, and (2) the flexion type, the former being more common. Diagnosis is made by noting pain,

swelling, tenderness over the lower end of the humerus, deformity and crepitus. The bony points are not altered as in the case of dislocation, where the tip of the olecranon process, is at a higher level than the medial and lateral condyles. Injuries to the nerves and blood-vessels must be looked for : Absence of pulse, pallor, pain and immobility of the fingers, are the signs of vascular obstruction, and immediate steps must be taken to relieve the obstruction, such as removal of plaster bandage, or tight splints if any, reducing the degree of acute flexion of the elbow and extending the elbow to get the pulse back at the wrist.

Important points to remember in the management of these fractures are :—(1) They must be very carefully handled; (2) X-ray pictures in the antero-posterior and lateral directions must be taken before any attempt at reduction is made; (3) accurate corrections must be made of medial or lateral displacements, as otherwise, malunion with cubitus varus or valgus deformity will result. The antero-posterior displacement is not so important as the lateral displacements because if antero-posterior displacement is not corrected the only thing that will happen is limitation of flexion, but this flexion movement will improve gradually in about a year as there will be moulding of the fracture, but if the lateral displacement is not corrected, an ugly deformity will result which can be corrected only by an operation; (4) extension type of fracture must be immobilized in flexion and flexion type in extension; (5) vascular obstruction if present, must be treated urgently, and circulation of the limb must be checked after manipulation; (6) active movements of fingers immediately after reduction; (7) slab and bandage are all that is necessary and no plaster cast is needed; (8) six weeks of immobilization is enough in all cases and (9) active movements must be started after removal of bandage *but no massage or passive movements to gain function should be permitted.*

Manipulative reduction :—Extension, the common type. The line of fracture is from above, downwards and forwards, the lower fragment being displaced upwards and posteriorly and also displaced sideways.

The patient lies on his back. Under general anæsthesia, an assistant applies counter-traction at the arm and traction is applied by pulling the forearm in supination (*see* Fig. 28, p. 354). When the muscle spasm is overcome the sideways displacement medial or lateral is first corrected by restoring the normal carrying angle (*see* Fig. 29, p. 354). Next the fingers of the other hand are kept over the anterior aspect of the upper fragment and the thumb over the olecranon, pushes it forwards (*see* Fig. 30, p. 354), still maintaining traction, the elbow must now be flexed. If the fracture is well reduced, the tips of the fingers will

touch the shoulder. If the radial pulse is absent (*see* Fig. 31), the flexion should be reduced to the position where the pulse is felt very well. Sometimes the pulse may not be felt, but if the circulation is satisfactory, as known by the colour of the fingers which will be pink or red, there is nothing to worry about, but a

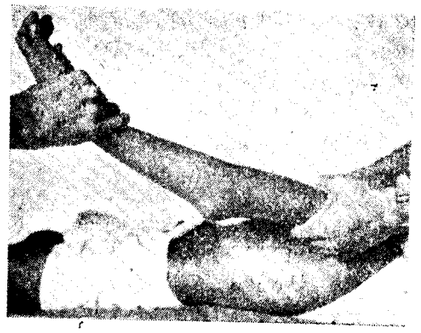


Fig. 28.

Fig. 29.

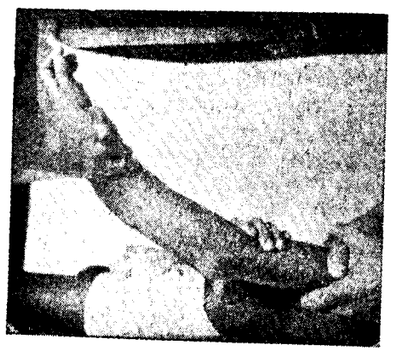


Fig. 30.

Fig. 31.

Figs. 28, 29, 30 and 31. Photos showing the different steps in the manipulative reduction of supra-condylar fracture referred to in the text.

careful watch must be kept over the patient. The fracture is immobilized by a posterior slab only. A cuff and collar are given and finger movements started. It is always desirable to take a check X-ray (*see* Figs. 32 to 34, p. 355). In case the reduction is not satisfactory two more trials are to be made by the end of which a satisfactory position will usually be obtained. Failure of reduction is due to insufficient traction, or failure to correct the sideways displacement before flexing the elbow. The patient must be seen on the next day without fail to see the colour of

e fingers and to supervise the finger movements. In case ere is cyanosis of the fingers or there is severe pain, the aster must be removed to restore circulation. Otherwise the aster should be kept for 6 weeks, then removed and active ercise started.

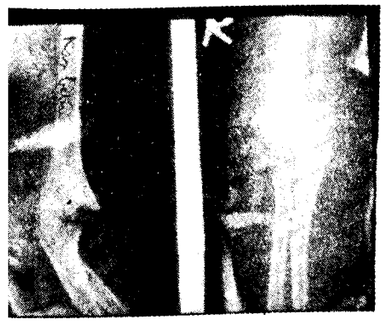


Fig. 32.

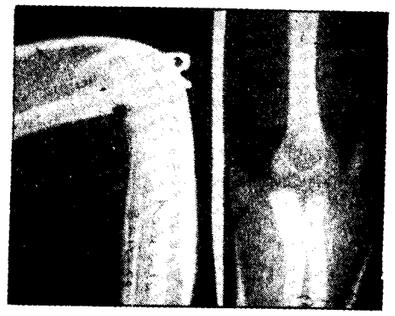
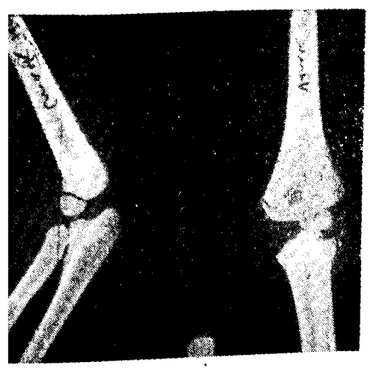


Fig. 33.

Figs. 32 and 33. X-rays showing supra-condylar fracture of humerus before and after reduction.



ig. 34. X-ray showing crack supra-dylar fracture.

Flexion type.—Here the lower fragment is displaced anteriorly and upwards, as such this fracture liable to cause damage to the artery and nerve. If the elbow is flexed, the lower fragment will be pulled up causing further injury to the blood vessel; so the elbow is immobilized in extension in a plaster slab. After about 10 days, the fragments will be sticky (*sic*), so the elbow should be flexed and kept in a slab for another 4 weeks; the elbow should not be kept in extension for a long time as it will get fixed in the same position.

In adults the fracture is 'T' or 'Y' shaped, involving the it. The wedge-shaped olecranon is forced between two con-es, which get separated due to muscle pull, producing com-te disorganization of the joint (*see* Fig. 35, p. 356). These are l fractures and complete restoration of function is impossible. aplete flexion and complete extension will be limited because callus will fill the olecranon fossa of the humerus as well as front portion. The following method of treatment has yielded d results:—The patient is kept in bed, and a Thomas's arm

splint is applied with skin traction to the lower fragment in order to correct the over-riding. (*see* Fig. 36 and 37). The elbow is kept in extension and supination and the fragment are pressed together with a bandage, without causing obstruction to the circulation. After 3 weeks, when the fragments become sticky, (*united* ?) the splint is removed and the limb is immobilized by plaster slab in right-angled flexion for another 3 weeks. Active movements are started to regain the function.

Fig. 36.

Generally the injured elbow is a problem to the practitioner, who should therefore, take great care in managing them. If he follows the above principles he will not repent having undertaken the task. Elbow-injuries are very badly treated by bone-setters, and all elbows handled by them, without exception, become stiff and deve-

Fig. 35.

Fig. 37.

Figs. 35, 36 and 37. X-ray showing 'Y' shaped fracture in adult, before and after reduction.

lop myositis ossificans, due to severe massage and forcible passive movements. The elbow always regains its function if active movements are practised. Stiff elbows are all due to massage and passive movements. There is no short-cut to regain joint function and the patient by himself must practise active exercises. Practitioners must impress upon patients about the dangers of massage.

Fractures of both bones in the forearm.—These fractures are due to direct as well as indirect injuries. The diagnosis is easy, as all the signs of fracture are present. In single bone fractures there is no deformity, but tenderness will be present. X-ray if available is always helpful in showing the type of displacement but the appearance of the fracture need not cause worry either to the patient or the doctor. It is sometimes impossible to get the correct anatomical position after reduction, but this need not cause despair. In spite of the over-riding which is called bayonet apposition, the fracture always unites and the function is quite satisfactory, as in all such cases moulding occurs, as a natural phenomenon. Only angulation is to be corrected, otherwise deformity will result.

Important points to remember in the management of these fractures are :—(1) The displacement of the radial fragment depends on the site of the fracture. In upper $\frac{1}{3}$ fractures, the upper fragment is displaced due to the unapposed action of the supinator, and is supinated, while the lower fragment is pronated because of the attachment of the pronators. So by merely supinating the forearm, the fragments are brought in alignment. In fractures of middle $\frac{1}{3}$, the upper fragment is in the mid-position due to the balanced action of the supinators and the pronators, and so the forearm must be immobilized in mid-pronation. In lower $\frac{1}{3}$ fractures the forearm should be similarly immobilized in full pronation, so also when reducing the fracture similar positions should be maintained; (2) every effort should be made to hitch the fragments by angulating the lower fragment; (3) if not successful even bayonet apposition gives good function; and (4) open reduction and internal fixation are not advisable as the results are unsatisfactory.

In children :—The fracture is of the green-stick variety with posterior angulation and usually occurs at mid one-third. Local tenderness, swelling and angulation are usually present. Plaster casing is given after correcting the angulation, and the plaster is moulded while it is setting. Immobilization for about 6 to 8 weeks is enough. In old fractures which unite with angulation, correction is obtained by breaking them under anæsthesia and fixing them in the correct position. If there is over-riding of fragments, it should be corrected as is done in adults.

Manipulative reduction :—Under general anæsthesia traction, and counter-traction are applied for correcting over-riding of fragments, with the elbow flexed (*see* Figs. 38 and 39, p. 358). If the fragments are hitched, there will not be telescoping of fragments *i.e.*, the fragments do not move up and down. This telescoping movement should be done gently as otherwise the hitched fragments will slip away. If the fragments are not hitched, an attempt is made to hitch the fragments by angulating them and

then straightening the forearm. If inspite of all this, it is not possible to hitch, they should be left alone and plaster applied after correcting the angulation, in the positions already described according to the site of fracture. The plaster is well moulded by applying pressure to the cast at the site of fracture, to prevent posterior angulation which occurs in the plaster at a later date due to wasting of the muscles. The plaster-casing must be kept

Fig. 38.

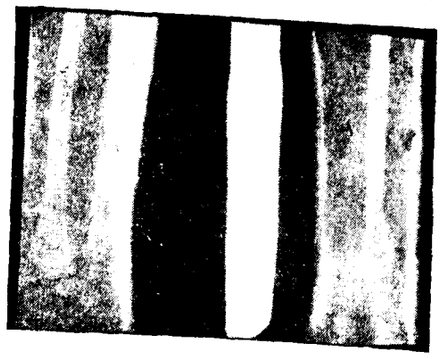


Fig. 39.

Figs. 38 and 39. X-ray showing fracture of both bones of the forearm in the lower $\frac{1}{3}$ before and after reduction.

on for 3 months and sometimes a little longer to make sure that there is good union as otherwise non-union with psuedoarthrosis, a common complication, occurs.

Fracture of single bones.—It is important to bear in mind that fracture of the lower $\frac{1}{3}$ of the radius and fracture of the upper $\frac{1}{3}$ of the ulna alone are associated with subluxation or dislocation of the adjacent radio-ulnar joint and it should be specially looked for. An X-ray is advisable in case of doubt; for it is necessary not to miss the dislocation of the head of the radius as it may produce limitation of movements, especially flexion. The fracture should be reduced in the usual way, but it is a difficult thing to achieve. In case it is not possible to reduce these fractures by manipulation, they must be corrected by open reduction for obtaining best results.

Colle's fracture.–This results from a fall on the out-stretched hand. It occurs very commonly in old people. The lower fragment is displaced backwards, upwards, laterally and tilted backwards and impacted, giving the typical dinner-fork deformity (*see* Fig. 40, p. 359). Diagnosis is by observing the swelling, and the alteration of bony points like the radial styloid and the ulnar styloid processes which will normally be at different levels, (the radial being normally at a lower level), but now at the same level. X-ray facilities if available, may be utilized, but is not absolutely essential either for reducing or for diagnosis.

Manipulative reduction :—Under general anæsthesia the elbow is flexed and with the forearm in pronation, countertraction and traction are applied to the forearm, the lower fragment is held by the surgeon, disimpacted by backward displacement and tilting corrected by volar flexion and the wrist deviated to the ulnar side with traction still applied to the thumb and held in this position (*see* Fig 41). Accurate reduction is con-

Fig. 40.

Fig. 41.

Figs. 40 and 41. X-ray showing Colle's fracture before and after reduction.

firmed by the restoration of the levels of styloid processes, as already described. A plaster casing is given from below the elbow up to the palm till the middle palmar crease, leaving the fingers free for movement. Later, movements of the elbow, shoulder and fingers must be practised throughout the period of immobilization, which is not more than 8 weeks.

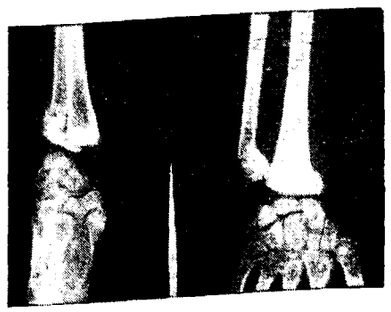


Fig. 42.

Fig. 43.

Figs. 42 and 43. Fracture separation of the lower radial epiphysis, X-rays showing fracture before and after reduction.

In children :—Fracture separation occurs and it should be reduced without delay, as otherwise reduction would be impossible. The manipulation here is the same as in the cases of adults (*see* Figs. 42 and 43).

Comminuted Colle's fracture should also be treated in the same way, but it should be remembered that because of involvement of the joint, osteoarthritis will result at a later date.

Fracture of the shaft of the metacarpals.—These are the easiest to treat. If there is angulation or over-riding, they can be corrected by manipulation and subsequent immobilization for 3 weeks. Active exercises for fingers are continued all along.

Fracture of the neck of the metacarpals.—It may occur in any metacarpal but most commonly in the 5th metacarpal. The fracture is angulated backwards. The lateral ligaments of the metacarpo-phalangeal joint are lax in extension and taut in flexion and this fact is utilized in reducing the fracture. The finger is flexed over a rolled bandage and kept for 2 weeks and active movements of fingers started. But the rest of the fingers must be made to move from the time of the injury, otherwise they will become stiff.

Fracture of the phalanges.—The base of the proximal phalanx is the common site and the fracture is angulated forwards. Angulation should be corrected by straightening the finger. Immobilization is carried out by applying sticking plaster around the phalanx leaving the joints above and below free for exercise. In some cases if there is lateral angulation the adjacent finger is also strapped along with the injured (an exception). Active movements are started immediately and continued all along with other fingers. The plaster is kept for one week or 10 days only.

FIG. 44. X-ray showing dislocation of the acromio-clavicular joint, below which is seen fracture of the outer end of the clavicle, for comparison.

Important points to remember in the treatment of fracture of the phalanges are:—(1) No other finger except the injured one should be immobilized; (2) all other fingers must be kept exercised even from the time of injury, for ordinarily the patient will not move the fingers, and this will lead to œdema, and consequent adhesions and stiffness. This vicious circle must be broken by movements which will improve the circulation helping the œdema to subside, and preventing adhesions and stiffness, and (3) in case of compound injuries antibiotics to the fullest saturation must be given and immobilization must be shortest; active exercises must be started very early. In case the finger is badly damaged beyond repair, early amputation of the injured finger is the treatment of choice. This rule is applied to all fingers except the thumb, which must be saved at all costs.

Dislocation.—*Dislocation of the acromioclavicular joint*:—The outer end of the clavicle is prominent and stepping is present and so diagnosis is easy. The dislocation is reduced by elevating the limb and strapping from below over the middle of the clavicle, round the elbow as shown in *Fig. 44, p. 360*. This is kept in position for 3 weeks. Later active exercises of the shoulder should be started.

Dislocation of the shoulder (*see* Figs. 45 and 46):—Anterior dislocation is the commonest. The limb is flexed and abducted and cannot be brought close to the side of the chest. There is fulness in front of the shoulder, and flattening of the shoulder will be obvious as in *Fig. 45*. The head is felt in front of the shoulder, and diagnosis is easy. An X-ray picture may be taken, when possible, in order to exclude any associated fracture but it is not essential for purposes of treatment.

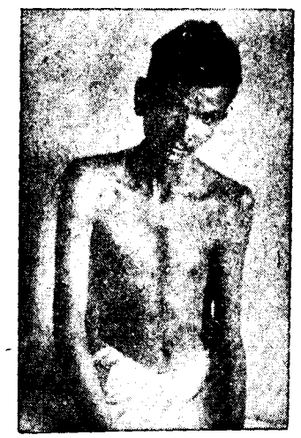


FIG. 45. Clinical photo showing sub-coracoid dislocation of the left shoulder.

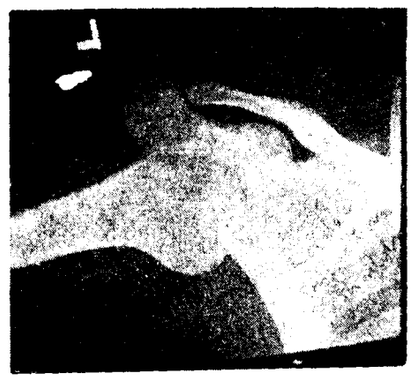


FIG. 46. X-ray showing sub-coracoid dislocation of the shoulder.

KOCHERS' METHOD OF MANIPULATIVE REDUCTION:—Under general anæsthesia with the patient lying on his back and the elbow flexed, traction is applied in the long axis of the limb while an assistant applies counter-traction through the axilla. The forearm is now gently rotated externally, the elbow is brought over to the umbilicus by adducting the limb, the palm of the same limb is placed over the opposite shoulder by rotating the limb. By this movement the head gets into the joint.

HIPPOCRATES METHOD OF MANIPULATIVE REDUCTION:—With the patient on his back, the surgeon places his foot in the axilla

of the patient, and as traction is applied to the limb the head of the humerus is pushed with the toes into the glenoid cavity. In some cases the arm is hyperextended by the surgeon gradually, and the assitant pushes the head with his thumbs into the glenoid cavity. These methods are particularly useful in delayed cases where Kocher's method will not succeed.

The arm is immobilized by fastening it to the chest by a bandage for a period of three weeks. If the bandage is removed earlier there is the likelihood of the patient developing recurrent dislocation. Active movements are started to regain the shoulder movements.

Dislocation of the elbow (*see* Figs. 47 and 48):—This occurs from a fall on the outstretched hand, and the forearm bones *namely*, the radius and ulna are displaced posteriorly and sideways. It is called posterior dislocation. Anterior dislocation is very rare and occurs as a result of fracture of the olecranon.

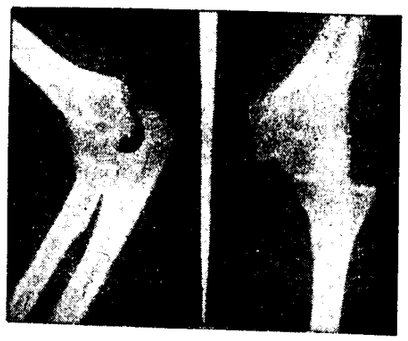


Fig. 47.

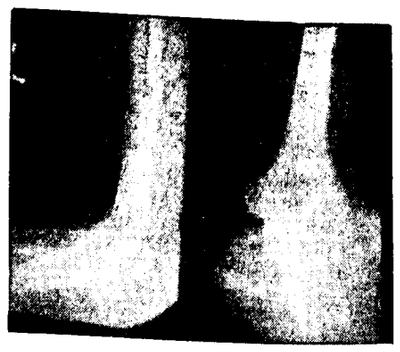


Fig. 48.

Figs. 47 and 48. X-rays showing postero-lateral dislocation of elbow, before and after reduction.

The diagnosis of posterior dislocation is made by looking for any swelling around the joint and by noting the tip of the olecranon at a higher level than the two epicondyles of the humerus. An X-ray is desirable but not absolutely necessary.

Manipulative reduction is done under anæsthesia, by applying traction in extension or with the elbow flexed, traction is applied to the forearm with countertraction to the arm by the assistant. Dislocation is reduced with a click, and is confirmed by flexing the elbow completely and noting the bony points in their normal portions.

Dislocation of the metacarpo-phalangeal joint (*see* Fig. 49, p. 363):—The proximal phalanx is displaced backwards, and movements of the joint are not possible and hence diagnosis is easy.

An X-ray picture should be taken in all doubtful cases. Reduction must be done immediately, as delay makes reduction impossible. In such cases open reduction must be resorted to. Sometimes button-holing of the capsule occurs which makes reduction difficult and in such cases open reduction should be done.

Fig. 49. X-ray showing the dislocation of metacarpo-phalangeal joint of the index finger before and after reduction.

Dislocation of inter-phalangeal joint:—Due to hyper-extension of the joint, the distal phalanx is displaced dorsally. Reduction is simple; by applying traction it comes to position. Immobilization is unnecessary in all these cases. Active exercises are started immediately.

Compound fractures.—The following principles should be noted in the management of compound fractures: (1) No amputation of any portion of the limb should be done, however ghastly it may look in the first instance; (2) thorough washing of the affected part with sterile water to remove all dirt and foreign material; (3) plaster the wound nicely with penicillin powder and reduce the fracture and suture the wound if it is a *big one*, but not completely; (4) give only padded plaster or slab; (5) parenteral penicillin and other antibiotics should be given to control the sepsis; (5) the slab is changed as soon as it is soaked and plaster casing applied after the third or fourth day as no fresh swelling will occur and (6) if gangrene develops, amputation should be made after making sure how much limb can be saved. Thereafter the fracture is treated as for simple fracture.

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2. Blount, W.P.—Fractures in Children.
3. Vyaghreswarudu *et al* — Mediscope, April, 1958.
4. *Ibid*—Mediscope, 1959.

ON HEADACHE

Treatment of headache is made difficult by the fact that we are dealing with a symptom which may occur in almost any organic or psychogenic disturbance. The object of treatment (of headache) is twofold: to alleviate the pain of an immediate attack and to relieve the underlying cause, thereby preventing the subsequent attacks. The 4 main methods available for the treatment of headaches are pharmacotherapy, psychotherapy, surgery, and physiotherapy. Each may be tried individually or in combination, although in our experience pharmacotherapy and psychotherapy have been most effective.—(*Modern Therapy in Neurology*, via *Current Medical Digest*, Sep. 1959).

THE PATELLO-FEMORAL JOINT

At the 41st meeting of the British Orthopædic Association held at the Royal College of Surgeons in London on Oct. 22 and 23, 1959, Dr. French (London) described the mechanics of the patello-femoral joint. During weightbearing the joint took an increasing strain the more it was flexed. At 90° of flexion the pressure was equal to twenty times the body-weight. Osteoarthritis was accepted as being a mechanical disorder resulting from some incongruity of the joint surfaces. In the knee osteoarthritis usually began in the patello-femoral joint. Recurrent dislocation of the patella caused the most rapid wear, and subluxation rather less. Chondromalacia was an early stage of osteoarthritis, as was fibro-cartilaginous proliferation of the surface of the patella. Osteochondritis dissecans of the medical femoral condyle resulted from impact of the patella against this area when the knee was bent. Many loose bodies in the knee were cartilaginous and invisible on X-ray; these often arose from the patella. Any knee with episodes of pain and recurrent swelling should be explored with a view to patellectomy, which gave good results. Out of 55 reviewed, 40 were good, 10 fair, and 5 poor. The poor results were usually due to the operation being done too late.—(*The Lancet*, 21-11-'59).

TENDON TRANSPOSITION FOR PARALYTIC VALGUS FOOT

At the 41st meeting of the British Orthopædic Association held at the Aviv) said: In the paralytic valgus foot the talus was unstable because Royal College of Surgeons in London on Oct. 22, & 23, 1959, Dr. Axer (Telno muscles were attached to it. There was imbalance of the foot due to overaction of the evertors. When the valgus was extreme the head of the talus was unsupported and tilted downwards until it became almost vertical. He described an operation for correction of the deformity. The head of the talus was mobilized and reduced into its correct position. It was maintained in this position by transplanting one or two (but never more than two) of the overacting muscles into the neck of the talus. It was often necessary to lengthen the Achilles tendon to obtain a satisfactory position. Plaster was retained for six months. The results of 26 operations were reviewed. The ages varied between two and nine years, and the time between paralysis and operation from one and a half to seven years. The result was normal in 10, improved in 13, unchanged in 2, and overcorrected in 1. Dorsiflexion was good in 13, limited in 10, and absent in 3. The failures were due to inadequate correction of the talus.—(*The Lancet*, 21-11-'59).

INTRA-ARTICULAR STEROID THERAPY

A 'worthwhile response' is reported by Neil Cardoe (*Proceedings of the Royal Society of Medicine*, December 1959, *52*: 1109) in 88% of patients who received intra-articular injections of prednisolone trimethylacetate (200 mg. in 3 ml.) for rheumatoid arthritis of the knee. In the investigation upon which the report is based, 80 injections were given into 25 different joints and involving 22 patients. The injection was given by either the 'normal anterior approach' or, if aspiration was being carried out, by the lateral patellar approach. No local anæsthetic was used unless aspiration was attempted. After each injection patients were advised to remain off their feet as much as possible for the rest of the day of the injection, but no other restrictions were placed on them. Those who had had an effusion aspirated, were advised to wear a crepe knee bandage until their next visit. A detailed analysis of the results shows that 24% of the patients required only one injection, the response being so satisfactory that further injections were unnecessary. Seveval injections were required by 36%, whilst 28% required repeated injections.—(*The Practitioner*, Feb, 1960).

EVALUATION OF ANTIHYPERTENSIVE DRUGS

IN THE MANAGEMENT OF HYPERTENSION*

K. K. DATEY,
B.A., M.D., M.R.C.P. (Lond.),
F.A.C.C. (U.S.A.), D.T.M. & H. (Lond.),
B.Sc., D.C.H. (Lond.), M.R.C.P.E.,
F.C.C.P. (U.S.A.),
Hon. Physician, K.E.M. Hospital and G.S. Medical College, Bombay and Hon. Cardiologist, Bombay Hospital, Bombay

AND

N. K. JOSHI,
Research Assistant, K.E.M. Hospital, Bombay (now at Nagpur)

Introduction.—Until recently, we had very little to offer a patient with hypertension. Now, with the introduction of the new and potent antihypertensive drugs, it has been possible to treat cases of hypertension more effectively. The prognosis of malignant hypertension (McQueen and Smirk, (1956)[14] and also of severe forms of benign hypertension (Doyle and Smirk, 1955)[3] has improved with the use of these drugs, particularly of the ganglion-blocking type.

Of these new drugs, (there are several of them now) some can safely be used in domiciliary practice, while others have to be given only under close supervision.

In order to evaluate some of them, clinical trials were carried out as outlined below :—

(1) As far as possible, different drugs were used on the same patient, to compare their relative effects. This was particularly so with the many preparations of Rauwolfia serpentina. (2) When there was no response to a particular drug or where severe side-reactions appeared, another drug was tried. (3) If tolerance developed to one drug, another was administered. (4) When the response was inadequate to any one drug, one or more other antihypertensive agents were added and the effects observed.

MATERIAL AND METHODS :—1. Fifty patients with hypertension were either admitted to the K.E.M. Hospital or followed-up in the out-patient department, for from 10 days to 8 months. 34 of them were males and 16 females. The minimum age was 24 and the maximum 78, the average being 48 years.

2. A complete physical examination of all patients was made and all investigations carried out, including, kidney function tests, electrocardiograms, fundoscopy (Keith *et al*, 1939)[11] and Regitine test in 6 cases.

3. Blood-pressure was recorded in the left arm with the patient lying flat, using a standard cuff of 12 cm. width and a mercury sphygmomanometer. The cuff was inflated rapidly and then, as the pressure was reduced, the systolic pressure was recorded at the appearance of the first sound of Korotokoff's

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Specially contributed to the ANTISEPTIC.

series and the diastolic at the point when all sounds disappeared. When, however, there was a wide difference between muffling and disappearance of the sounds, both readings were recorded as diastolic pressure (Bordley *et al*: 1951)[1].

Treatment and results:—Sedation with Luminal gr. ½ three times a day for 6 to 21 days, was given to most patients in order to obtain a basal pressure. However, no delay was allowed to occur in instituting prompt treatment to patients with malignant hypertension, and to those with grade III hypertensive retinopathy, or those with severe headache or congestive cardiac failure. Cases with cerebrovascular episodes were also immediately given suitable antihypertensive drugs along with other measures. Anæmia and diabetes were controlled when necessary.

The following antihypertensive drugs* were used:—

(1) Serpagandha tablets, containing the whole powdered root of Rauwolfia serpentina. (2) Reserpine (Serpasil) tablets, each of 0·25 mg., the active principle of Rauwolfia serpentina. (3) Serpina tablets, with 4 mg. of crude extract of Rauwolfia serpentina. (4) 1-hydrazino phthalazine (Apresoline) each tablet containing 50 mg. (5) Veriloid tablets, containing 2 mg. veriloid in each tablet. (6) Hexamethonium tartrate (Vegolysen) injections, 1·0 cc. containing 138 mg. (7) Chlorisondamine (Ecolid) tablets, of 25 mg. each. (8) Pentolinium tartrate (Ansolysen) injections, 1·0 cc. equivalent to 5 mg.

I. Serpagandha.—A clinical trial with this preparation was undertaken of 5 patients, whose pressures ranged from 256/146 mm. to 150/100 mm. Hg. The maximum diastolic pressure of 150 mm., was present in a case whose systolic was 220 mm. The average pressure in this group was 180/125 mm. Hg.

The dose of Serpagandha varied from 6 to 24 tablets a day for 10 to 24 days, the average being 14 days. A fairly good response was obtained in all cases, the average reduction in the systolic being 45 mm. and in the diastolic, 34 mm. Hg. In 2 patients, the pressure became normal.

Later, in 3 out of the 5 cases, the pressure rose and the drug had to be discontinued, the patients were then given Serpasil (*vide* Serpasil *infra*) and later Apresoline (*vide* Apresoline *infra*).

II. Serpasil.—Serpasil was tried in 28 cases. Nine patients, were given this drug initially after the basal pressure was obtained. Eleven cases had it after discontinuing treatment with other antihypertensive agents, Serpagandha, Apresoline or

*The drugs for this study were supplied by the courtesy of:—
Ciba Pharma Ltd. (*Serpasil, Apresoline and Ecolid*); Himalaya Drug Co. (*Serpina*); May & Baker, Ltd. (*Vegolysen, Ansolysen*); Ricker Laboratories (*Veriloid*) and Zandu Pharmaceuticals (*Serpagandha*).

Ecolid. Serpasil was administered to the remaining 8 together with other antihypertensive drugs (Datey and Joshi, 1959)[2].

Nine patients had Serpasil whose pressures initially, were between 236/132 mm. and 150/100 mm., the average being 180/109 mm. The dose of Serpasil was 0·75 to 10 mg. a day for 10 to 29 days, average 20 days. Seven patients responded moderately well, the 2 who did not have a fall in pressure were put on other drugs, one on Apresoline (*vide* Apresoline *infra*) and the other on a combination of Serpasil and Apresoline (*vide* Combination of different antihypertensive drugs *infra*). The former group of 7, who responded to Serpasil, showed an average reduction of 34 mm. in the systolic pressure and 10 mm. in the diastolic. In 5, the pressure actually reached normal levels, and only one of these patients subsequently had a rise of pressure which had to be treated by Veriloid (*vide* Veriloid *infra*).

Eleven patients had Serpasil after other drugs had more or less failed. Five had been on Serpagandha, and this was changed to 1·5 to 10 mg. of Serpasil, daily for 15 days. The response was not encouraging. In 3 the pressure continued to rise, one had only a slight response to Serpasil, while the 5th case just managed to maintain the lower pressure initially induced by Serpagandha. Another group of 5 cases, who had been on Apresoline (75 to 400 mg. daily) were switched on to Serpasil. Apresoline had lowered the pressure in all 5, (in 3 it was actually normal), but it could not maintain the pressure at a lower level. Serpasil 0·75 to 5·25 mg. daily for 12 days, managed to produce an average drop of 55 mm. in the systolic and 35 mm. in the diastolic in 4 out of these 5 cases where Apresoline had failed, the pressures actually reaching normal levels in 3. One case did not respond at all to Serpasil. The last of these 11 cases, who had been on Ecolid (300 mg. daily), and in whom tolerance and toxicity had developed, was given Serpasil (5 mg. daily for 10 days),—the response, however, was only moderately good.

Table I

Showing the side-effects of Serpasil

	No. of cases		No. of cases
Insomnia ...	1	Loss of appetite ...	2
Diarrhœa ...	2	Bradycardia (marked, with pulse rate of 52) ...	1
Hot sensation over the body	1		
Nasal congestion ...	12	Burning sensation in the chest	1
Itching around nostrils ...	4		

III. Serpina.—Serpina was given to 30 cases, as the initial line of treatment in 17, after other drugs had failed in 5, and in combination with other anti-hypertensive drugs in 8.

The 17 patients, who had Serpina initially, had pressures between 215/105 and 150/100 mm., average 190/120 mm. Hg. The

maximum diastolic, 140 mm., was found in one patient with a systolic of 190 mm. Serpina (8 to 24 mg. daily for 10 to 30 days) reduced the pressure in 13 out of these 17 cases, the average systolic fall being 42 mm. and the diastolic 20 mm. In 10, the pressures actually returned to normal, 3 were lower but not normal and 4 did not change at all. Three of the latter 4, were later treated with a combination of Serpina and other drugs (*vide* Combination of different antihypertensive agents *infra*), while the remaining one was put on Veriloid (*vide* Veriloid).

Details of the 5 patients, who received Serpina (12 to 48 mg. daily for 15 to 30 days) after trial with other drugs, are given below :—

TABLE II

Original Pressure in mm.	1st Drug	Pressure in mm.	Serpina	Final Pressure in mm.
214/130	Serpasil 3-5 mg./day for 10-15 days	130/78 Later rose to 160/100	12 mg./day for 10 days	130/78
200/120	Do.	160/100 Later rose to 200/120	28 mg./day for 10 days	154/90
204/104	Veriloid 20 mg./day for 24 days	140/80 Later rose	32-48 mg./day for 60 days	144/80

As the remaining 2 cases were given Serpina and Ansolysen and Serpina and Apresoline respectively, they are described under combination of various antihypertensive drugs.

TABLE III

Showing the side reactions associated with Serpina

	No. of cases		No. of cases
Constipation	... 2	Marked bradycardia (pulse rate of 52)	... 1
Congestion of nose	... 9	(Most cases had slowing, as compared with the initial heart rate)	
Itching around nostrils	... 3		
Diarrhœa	... 2		

IV. Apresoline.—Apresoline was tried in 31 cases. It was given to 7 initially, to 10 after the unsuccessful use of other antihypertensive drugs and to the remaining 14 in conjunction with other antihypertensive agents.

In the first group of 7, the pressure was between 230/120 mm. and 180/100 mm., the average being 200/110 mm. Hg. The highest diastolic, 140 mm. was found in a patient whose systolic pressure was 220 mm. Apresoline (75 to 600 mg. daily for 8 to 25 days) reduced the pressure in all cases, to a variable extent, the average systolic pressure falling by 46 mm. and the diastolic by 25 mm. In 3, the pressure actually reached normal levels. After 10 days,

5 out of these 7 cases had rise in their pressures and Apresoline had to be substituted by Serpasil (*vide Serpasil, supra*).

Of the 10 patients who had Apresoline after other antihypertensive drugs had failed, 5 had been on Serpagandha and later Serpasil and the other 5 on Veriloid. In the former 5, Serpagandha and Serpasil (1·5 to 10 mg. daily for 15 days) had produced a moderate drop in 3, but had no effect at all in 2. Apresoline had exactly the same effect in these 5 cases, the 3 who responded had an average fall of 30 mm. systolic and 24 mm. Hg. diastolic pressure. The pressure did not return to normal in any of these cases.

The latter 5 had been on Veriloid, which had reduced the pressure but had also produced side-effects. Apresoline (75 to 550 mg. daily for 15 days) also reduced the pressure, the systolic by 30 mm. and the diastolic by 24 mm. on an average. In 4 the pressure actually reached normal.

TABLE IV

Showing the side reactions associated with Apresoline

	No. of cases		No. of cases
Headache	... 10	Palpitation	... 2
Nausea	... 3	Abdominal pain and discomfort	4
Vomiting	... 6	Tachycardia	... 1

V. Veriloid.—Sixteen patients had Veriloid, 4 had it initially, 4 after other drugs had failed and the remaining 8 had it together with other antihypertensive drugs.

The 4 who were given Veriloid first of all, had pressures between 230/150 mm. and 160/100 mm., the average being 185/125 mm. Veriloid, 8 to 40 mg. daily for 8 to 22 days (average 15 days) reduced the pressure to normal in all 4 cases, the average systolic fall being 64 mm. and the diastolic 30 mm. Hg. But the pressure rose after about 8 to 10 days. The dose of Veriloid was increased but side reactions appeared and it had to be discontinued. These cases were later treated with Apresoline (*vide Apresoline*).

The reactions in 4 patients who had Veriloid after other drugs had failed are given here :

TABLE V

1st Drug	Veriloid	Pressure-fall in mm. Hg.
Apresoline	18 mg./day	64 systolic 24 diastolic Later given Serpina with good results
Do.	Do.	14 systolic 10 diastolic
Serpasil 1·5 mg./day for 8 days	6 mg./day for 8 days	30 systolic 10 diastolic Later B.P. rose and so was given Apresoline (*vide Apresoline*)
Serpina	10 mg./day for 10 days	0 systolic 10 diastolic

Two other cases are of interest. They had acute hypertensive encephalopathy and a Veriloid drip (3 mg. in 200 cc. of 6% glucose) was given, the rate being adjusted according to the fall in the pressure. The drop in pressure was:—40 mm. and 35 mm. systolic and 25 mm. and 20 mm. diastolic respectively.

TABLE VI

Showing the side reactions of Veriloid

	No. of cases		No. of cases
Vomiting	... 6	Substernal burning	... 5
Diarrhœa	... 2		
Marked bradycardia	... 1	Nausea	... 4

VI. Combination of various antihypertensive drugs.—This was tried in 17 cases, sometimes a patient had more than one such combination.

TABLE VII

Showing the results of using a combination of drugs

A. Apresoline + Veriloid + Serpasil (75-300 mg. 8-24 mg. 0·75-1·5 mg.) was given daily to 3 cases. They are here described :—

Drugs used in chronological order	Pressure in mm.
(*i*) Serrpasil 6 mg. daily	No change
Apresoline 400 mg. daily	No change
Veriloid 18 mg. daily, later discontinued due to side effects	Reduced by 14 mm. systolic 10 mm. diastolic
Veriloid 24 mg. + Serpasil 1·4 mg. daily for 13 days	Rose from 192/112 to 200/116
Veriloid 22 mg. + Apresoline 300 mg.	No change
Veriloid + Apresoline + Serpasil (as above)	No change
(*ii*) Case with grade IV hypertensive retinopathy	220/140
Apresoline 150 mg. + Veriloid 20 mg. + Serpasil 1·5 mg.	140/100
(*iii*) Pressure before treatment	240/130
Apresoline 150 mg. + Veriloid 11 mg. + Serpasil 1 mg. daily for 7 days	180/95
Pressure rose again, later so was given the above combination + Vegolysen 20 mg. (in 4 divided doses) for 2 days	166/85

Drugs used in chronological order	Pressure in mm.
B. *Vegolysen* (intramusoularly) + *Apresoline*	
(*i*) Pressure before treatment	220/126
Vegolysen 15 mg. + Apresoline 150 mg. for one day	175/110
Apresoline 150 mg. daily	Remained lower
(*ii*) Case with hypertensive retinopathy (grade III)	198/120
Vegolysen 20 mg. + Apresoline 150 mg. + Veriloid 12 mg. + Serpasil 1 mg.	184/106
C. *Ansolysen* (intramuscularly) + *Serpina*	
(*i*) Pressure before treatment	190/110
Ansolysen 3·5-240 mg. Serpina 8-16 mg. for 2 days.	155/90
Serpina 12 mg. daily for 10 days (vide *Serpina*	Remained lower, but only for 15 days
(*ii*) Pressure before treatment	200/140
Ansolysen + Serpina as above for 16 days	180/120
do + Apresoline 250 mg. for 16 days	120/80
Then pressure rose, so switched to Vegolysen + Apresoline (vide *Vegolysen + Apresoline*)	

TABLE VII—(*Contd.*)

Drugs Used in chronological order	Pressure in mm.
Serpina + Apresoline	
(*ii*) and (*iii*) Serpina 8-24 mg. + Apresoline 75-150 mg. for 8 to 18 days, with average fall of 15 systolic and 9 diastolic	
) Do.	No change
Serpina + Veriloid	
Serpina 24 mg./day for 3 days	No change
Veriloid 6 mg. daily for 14 days	No change
Serpina 24 mg. + Veriloid 6 mg. daily for 8 days	Systolic pressure fell by 25 mm. diastolic same
i) Original pressure	190/110
Serpina 24 mg. daily for 14 days	200/110
Serpina 24 mg. + Veriloid 6 mg. daily for 6 days (Veriloid could not be increased due to side effects)	No change
Vegolysen + Veriloid + Serpasil (injection)	
) Original pressure	230/150
Apresoline 250 mg. + Injection Ansolysen 240 mg. + Serpina 8 mg.	170/110, but later rose
Vegolysen 30 mg. + Veriloid 16 mg. + Serpasil 1·5 mg. for 14 days (injection)	Systolic—20 Diastolic—30
Veriloid 18 mg. + Serpasil 1·5 mg. for 12 days	No change
i. Apresoline + Serpasil	
i) Apresoline 75-150mg. Serpasil 0·75-2 mg. for 10 to 16 days.	Systolic—40 Diastolic—28
ii) Do.	Systolic—62 Diastolic—28
iii) Do.	No change

The Regitine test was performed in 6 cases, but was negative in all the six.

Discussion.—*Rauwolfia serpentina group*:—Serpagandha, the powdered root of Rauwolfia serpentina, contains reserpine as well as other alkaloids. The response to it was at first encouraging in all cases, the average fall being 45 mm. systolic and 34 mm. diastolic. Later, the pressure rose though the dose was increased.

Serpina, which, also contains the crude extract of the root of Rauwolfia serpentina, produced an equally good reduction in pressure at first in 13 out of the 17 to whom it was given as the first line of treatment.

Serpasil, with the active principle reserpine, had the same effect; in 7 out of 9 patients the systolic fell by 34 mm. and the diastolic by 10 mm. (average figures). Moreover, in 5 out of 7 cases, serpasil maintained the pressure at a lower level.

Though Serpagandha, Serpasil and Apresoline each separately lowered the pressure in 4 patients, the first appeared to have a greater hypotensive effect than the other two. But tolerance to Serpagandha developed quickly and the pressure subsequently rose again.

In 5 cases, in which Apresoline was unable to maintain its initial hypotensive effect, Serpasil was tried for 12 days, the pressure again fell in 4 out of the 5. It was also useful in one case that had developed signs of tolerance and toxicity to Ecolid. Given, after Serpagandha had failed to maintain the pressure at a lower level, Serpasil was successful in 3 out of 5 cases after 15 days' treatment.

When Serpasil failed to keep the pressure down in another 2 patients, Serpina was tried with success. It would appear therefore, that it might be worth while to change the preparation when there is no response to one particular derivative of Rauwolfia serpentina.

Serpina also maintained the pressure at a lower level after other drugs had reduced it. This was seen in one patient, whose pressure had been lowered by Veriloid and whose pressure was kept at this level by Serpina for 2 months. It was also seen in another case whose pressure had been initially reduced by Serpina and Ansolysen injections. Here, however, Serpina by itself was successful for only 15 days. In a third patient, who was not so fortunate, Serpina by itself had no effect in keeping down the pressure which had been moderately lowered by Apresoline and Serpina. There was no evidence of tolerance in the majority of cases treated with Rauwolfia serpentina. Hodgkinson (1956)[8] also did not find any sign of it in his group of 34 patients, where the average fall in pressure was 18 mm. systolic and 15 mm. diastolic. Locket (1955)[12] has reported favourably on the results of treating 39 cases with the crude extract of Rauwolfia serpentina. Loffler *et al* (1953)[13] using Reserpine 0·75 to 1·5 mg. daily in 51 cases, noticed that only 14 had a reduction in pressure, and that too for just 12 days. Only 4 of their patients could be maintained at a lower pressure with Reserpine.

Fortunately a wide margin of safety exists between the therapeutic and toxic doses of the Rauwolfia serpentina group. Some unpleasant effects, such as nasal congestion and dryness of the mouth and throat are very common, but severe reactions did not appear even when the doses were high, *e.g.* Serpasil 10 mg. or Serpina 48 mg. a day. It seems curious but the toxic effects of Rauwolfia serpentina are not necessarily associated with the higher doses of the drug.

Apresoline.—Hydralazine, used as the first line of treatment, had a good effect in all 7 cases, the average systolic fall being 44 mm. and the diastolic 25 mm. But this drop was not maintained, except in 2 patients.

Apresoline, used after Veriloid in 5 cases, lowered the pressure moderately in all, the systolic by 30 mm. and the diastolic by 24 mm. (average). Another 5 patients, who had Apresoline after Serpasil, did not fare so well, only 3 responding with a slight average fall of 19 mm. systolic and 12 mm. diastolic.

Moyer (1953)[16] gave 100 to 1,100 mg. of apresoline to 54 patients. 19 of them (35%) had an initial reduction in the mean pressure of more than 20 mm., while many more with less severe hypertension (diastolic under 120 mm.) showed a marked drop in the pressure. Postural hypotension was also present in his cases.

Johnson *et al* (1952)[10] had good results with apresoline in 65% of their cases, while Taylor *et al* (1954)[20] found it useful in only about half of their series, but then their patients were suffering from severe hypertension. Although no tolerance to Apresoline was observed by Hafkenschiel and Lindauer (1953)[7] in their 40 cases, 15 out of 17 patients (88·0%) in this series became tolerant to it, and eventually the drug had to be withdrawn as the initial fall in pressure could not be maintained.

Veriloid.—This drug appears to be more useful in mild to moderate degrees of hypertension.

In the 4 patients who had this drug, the immediate response was good in all, the systolic drop was 64 mm. and the diastolic 30 mm. (average), but tolerance developed in 8 to 10 days.

Variable results after Veriloid have been reported by Meilman and Krayer (1952)[15] and by Hoobler *et al* (1952)[9]. However, veratrum preparations may be very useful given intravenously in an emergency for the acute hypertensive crises of essential hypertension, acute glomerulo-nephritis or toxæmia of pregnancy. Stearns and Ellis (1952)[19] obtained good results in 25 such cases with an intravenous drip of Veriloid, 0·6 to 1·1 microgram per kg. body weight per minute. Two similar cases of ours were given a veriloid drip and the pressures were reduced by 35 mm. and 25 mm. systolic and 20 mm. and 25 mm. diastolic respectively. The development of tolerance and the small range between the effective therapeutic and toxic dose of Veriloid would appear to preclude its use for continuous routine treatment. Moreover, side reactions were seen in one of the cases in this series after only 8 days' treatment.

Combinations of various antihypertensive drugs.—These have been recommended by several workers for patients who have severe or malignant hypertension, who are refractory to a single drug or who have shown tolerance of toxicity to a single preparation. 23 patients in this series were tried on various combinations. Apresoline, with Veriloid and Serpasil were given to 3 patients, with a good response in 2, lasting only for about 15 days. There are several advantages in combining Veriloid with other antihypertensive drugs, such as Apresoline or Serpasil. The advantage being, lower doses of Veriloid are then required, and the bradycardia produced by Veriloid is neutralized to some extent by the fast pulse of Apresoline. Freis *et al* (1953)[5] have used this combination successfully in cases of benign hypertension. They mention that Apresoline should seldom be used alone, because it produces unpleasant side-effects, notably headache.

Apresoline and Serpasil together were tried in 3 cases, 2 of them having a fall in pressure of 40 mm. and 62 mm. systolic and 28 mm. and 28 mm. diastolic respectively. Winsor (1954)[21]

has successfully used this combination, (Apresoline 100 mg. with Reserpine 0·4 mg.) in cases of benign hypertension. Naegele *et al* (1955)[17] had good results with Apresoline and Rauwolfia serpentina in most of their patients with mild or moderate hypertension, and frequently also with severe hypertension. They say that the prior use of Rauwolfia serpentina reduces the incidence of severe palpitation, tachycardia and headache, all of which are common with Apresoline. Apresoline and Serpina in 4 of our cases, reduced the pressure, but the reduction was insignificant in three. The ganglion-blocking agents, Vegolysen and Ansolysen, are very effective, when given intramuscularly in adequate doses for lowering the pressure in severe benign or malignant hypertension. In one such case, Vegolysen and Apresoline reduced the pressure in one day, the systolic by 25mm. and the diastolic by 16mm. In another case, Vegolysen, Veriloid and Serpasil together brought down the systolic by 20 mm. and the diastolic by 30 mm. after 14 days' treatment.

Doyle *et al* (1955)[4] say that when Reserpine or Apresoline is combined with a pentamethonium compound, it tends to reduce tolerance to the compound, neutralizes wide fluctuations in pressure and the side-effects of the ganglion-blocking agent. Schroeder (1954)[18] also obtained good results by combining Hexamethonium with Hydralazine, this being known as 'Hyphex.' There are, however, several advantages in giving Vegolysen or Ansolysen intramuscularly rather than by mouth. It ensures rapid action, a much smaller dose is required, nausea and vomiting are avoided. This facilitates the treatment of severe and malignant hypertension and of a hypertensive crisis, but care should always be taken to see that the pressure does not drop down too rapidly.

Ansolysen and Serpina in 2 cases lowered the pressure fairly well. One patient was later treated with Serpina alone, but the pressure remained low for only 15 days. The other case was given Apresoline in addition and the pressure fell still further, but this happy state lasted for only 16 days.

Freis and Wilson (1956)[6] gave Ansolysen (they, however, used the oral preparation) and Rauwolfia serpentina to 71 patients (61 had Reserpine and 10 the crude extract). The mean pressure reduction was 16% in the supine position and 26% standing erect. Freis and Wilson (1954)[6] also added Apresoline to this combination and gave it to 50 cases. The mean pressure was lowered by 25% in the supine and by 28% in the erect position over a period of 4 months. Thus it will be appreciated that various combinations of the antihypertensive drugs afford much hope to those with severe or malignant hypertension.

Summary.—(1) Various antihypertensive drugs were tried in 50 cases. (2) The importance of knowing the basal blood-pressure, before starting treatment, is stressed. (3) Effect of various drugs on the same case is evaluated. Serpagandha, Serpasil and Apresoline each separately lowered the pressure in the same patients, but the reduction with Serpagandha was greater than that with the other two. Tolerance, however, was more quickly established to Serpagandha than to the others. (4) Apresoline and Veriloid are useful in mild to moderate types of hypertension. Partial tolerance to them may develop and the margin between the therapeutic and the toxic dose is narrow. (5) Most of the drugs used, though effective, produced unpleasant side-reactions which necessitated their withdrawal. The Rauwolfia serpentina group was an exception to this rule, the common side-effects were stuffiness of the nose and dryness of the mouth and throat and none of them were severe enough to justify omission of the drug. The appearance of mental symptoms however, is an indication to stop the administration of the drug. (6) For cases which have not responded to a single drug, and have become partially tolerant to it or which cannot take larger doses because of side-effects, a combination of the various antihypertensive agents may prove very useful.

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CÆSAREAN TOTAL HYSTERECTOMY

In the presence of strong indications for removal of the uterus should hysterectomy be performed at the time of caesarean section? Are the complications of this procedure greater? Is there more danger of neonatal mortality?

Recent reports indicate increasing interest in the desirability of performance of total hysterectomy at the time of cæsarean section in indicated cases. Subtotal hysterectomy at cæsarean section has been performed for a number of years and is generally accepted by obstetricians and gynæcologists, but there are still some who question the validity of total hysterectomy at cæsarean section. We believe that this operation, when performed under the proper circumstances, deserves greater popularity than it now enjoys.

Since January 1, 1946, whenever removal of the uterus was considered indicated at the time of cæsarean section, Drs. Schneider and Tyrone of New Orleans have performed total hysterectomy. Experience with cæsarean total hysterectomy in 72 patients seen at the Ochsner Clinic during the ensuing thirteen years has convinced them not only of its safety but also of the desirability of its performance in indicated cases. They have noted that the uterus that has been subjected to cæsarean section

with tubal ligation or salpingectomy is liable to cause troublesome symptoms eventually, such as menstrual irregularities, hypermenorrhœa, polymenorrhœa, dysmenorrhœa, pelvic pain and dyspareunia.

The technique for cæsarean total hysterectomy employed in the present series differs little from that of for standard abdominal hysterectomy. The anæsthetic of choice is spinal. Of the 72 patients in this series, 67 had spinal anæsthetics and 5 general.

When the abdomen is opened, the bladder flap is usually more easily handled than it is in the nonpregnant state, although dense adhesions to the bladder from previous scars may prolong the dissection in some instances.

Either a transverse or longitudinal incision is made in the fundus, depending upon the surgeon's preference and the degree of scarring. The baby and placenta are delivered. Pitocin may be injected into the uterus after the baby is delivered to facilitate placental removal and uterine contraction. A chromic I running suture closes the uterine incision and aids in obtaining maximum hemostasis. With effective uterine contraction, a significant amount of blood may be diverted back into the circulation from the uterine fundus.

The round, utero-ovarian, and broad ligaments are clamped close to the uterus, cut and tied. After the uterus is firmly contracted, the uterine vessels are clamped, cut and tied. The cardinal ligaments and uterosacral ligaments are usually cut and ligated separately. The vagina is opened posteriorly just below the cervix and the entire uterus is removed. The vaginal vault is closed with a continuous catgut suture. The round and uterosacral ligaments are incorporated into the angles of the vault to insure adequate support. Peritonealization is easily accomplished with the usually generous bladder flap of peritoneum. The abdomen is closed in layers with interrupted cotton sutures.

The operating time is not substantially increased by removal of the uterus at the time of cæsarean section. The average duration of operation from incision to complete closure in the 72 patients was 80 minutes.

Despite greatly increased vascularity of all tissue in pregnancy, excessive bleeding during operation was not a problem in our patients. Forty of the 72 patients required no blood, 28 received only one pint of blood during or after operation, and only 3 received more than one pint. Ambulation on the first postoperative day is the rule.

This group of patients has been carefully followed, some for as long as ten years. These women have repeatedly expressed their complete satisfaction with the results of the operation. No emotional conflicts have arisen in these patients as a result of removal of the uterus. There has been no evidence of premature ovarian failure as a result of the operation. Repeated examinations have failed to disclose any enlarged adnexa. All patients have had normal and well supported vaginas. No incisional hernias have developed postoperatively. No patient has complained of dyspareunia who did not mention it as a complaint postoperatively. The mortality and morbidity rates are no greater than after cæsarean section or hysterectomy alone. As a prophylactic procedure it insures prevention of development of serious disease in an aging and usually no longer useful organ. As a therapeutic procedure it corrects pathologic conditions by eliminating a diseased and degenerating organ. Finally as a means of sterilization it is the most certain method. In the words of Davis "it is a logical advance in modern obstetric surgery."—(*Journal of Louisiana State Medical Society*, December 1959).

TROPICAL EOSINOPHILIA*

(WEINGARTEN SYNDROME)

M. M. PRADHAN, M.D., M.R.C.P.,
Department of Medicine,
S.C.B. Medical College, Cuttack

Introduction.—Frimodt-Moller and Barton (1940) in Madanapalle Sanatorium (Madras) observed cases with symptoms and radiological features of tuberculosis but having good prognosis as judged by the result of treatment and after-histories. They published a report on 175 cases under the caption of "Pseudo-tuberculosis lung Eosinophila." The chief clinical features of the condition as described by them were spasmodic cough, fever, loss of weight, hæmoptysis with a prolonged but benign course and extensive mottling over both lung fields usually evenly distributed. Weingarten (1943) in Bombay described a complex of symptoms of a similar nature with the results of arsenotherapy in his 81 cases and gave the name "Tropical Eosinophilia" to this condition. Loeffler (1932-1936) had described a condition with eosinophilia and transient pulmonary infiltration. Since then various authors working in different countries, *e.g.*, Tren, Simeons, Chaudhuri, Leishman and Kelsell, Chakravarty and Roy Shah, Menon, Lal, Vishwanathan, Kiui Parson-Smith, Parkes Weber, Emerson, Fenner, Apley and Grant, Greval, Carter Wedd and D' Abreara and Bass and several others in India, Ceylon, Egypt, Tanganyika, England, Samoa, South West Pacific Islands, Nigeria, West Indies, China, Korea, Australia, America and Havana have recorded their observations in the medical literature.

Predisposing causes.—AETIOLOGY :—Though the name tropical eosinophilia has been given to this disease, the literature shows that it is of world-wide occurrence. In India it is confined more to the coastal districts like Madras, Bombay, Orissa and Bengal.

Age :—No age is an exempt from this disease but it is more common in the young age-group (15 to 40). The youngest in my series of thirty cases was three and the oldest was 45 years of age.

Sex :—It is more common in males than in females, the proportion being 3 : 1 in my series.

Climate :—It is more common in damp than in dry climates. The incidence was more common among the poorer classes living under unhygienic conditions. Dusty atmosphere aggravates the condition and sometimes produces relapses in such cases.

Exciting factors :—The precise cause is unknown but various speculative theories have been put forward to account for its causation.

*Specially contributed to the ANTISEPTIC

I. Infection by mites.—In his study of eight cases, Van der Sar demonstrated mites in the sputum of all the patients. Acton and Dharmendra, and Dharmendra and Napier thought that intestinal infections might be responsible for the attacks. Carter, Wedd and D'Arrit found mites in the sputum in 17 out of 28 cases. Later studies showed however, that this may have been due to outside contamination. All the cases did not reveal the presence of the mite in the sputum.

II. Allergy hypothesis.—In most allergic conditions, the eosinophil count is high which some believed to be due to an allergic condition; but in allergic conditions the total W.B.C. count is not generally increased while an increase is noted in the so-called Tropical eosinophilia. No other dermatological lesion like urticaria or itching is noted in this condition. If it is at all allergic, there is no basis for the belief that it responds to antihistaminic drugs.

Virus theory.—Vishwanathan and Natarajan noted that 53 out of 61 cases gave a positive cold agglutination with a titre varying from 1 in 16 to 1 in 2048. 27 cases gave titres above 1 in 256. Therapeutically a few cases are reported to have yielded good results after aureomycin treatment which is in favour of the virus theory. The high leucocyte count with an eosinophilic count of 30 to 80% are not in favour of the virus theory.

Low irregular fever, changes in the lungs, occasional splenomegaly in the febrile period with enlargement of glands, a raised erythrocyte sedimentation rate and constitutional symptoms, response to parasiticidal drugs like arsenic, and a high leucocytosis, are all in favour of an infection theory. If so, whether the infection is protozoal, bacterial or viral, will require investigation.

PATHOLOGY:—It looks like a primary alveolar infiltration which spreads to the peribronchial lymphatics. The outstanding histological features of the pulmonary lesions are:—the large number of eosinophilic leucocytes in the pneumonic exudate, the advanced organization of the exudate with fibrous and giant cells, the presence of peculiar granulomatous lesions and the occurrence of necrotizing arteritis and phlebitis.

CLINICAL FEATURES:—The onset is generally insidious but it may rarely set in as an acute attack of asthma.

The main presenting feature is a persistent irritant type of cough which may be productive or not productive. In the majority (nearly 70%) of the thirty cases in my series, the cough was unproductive and was slightly more severe at night. Dyspnœa was present in 75% of the cases. In about 20% of the cases, there was tightness or a sense of constriction, along with the dyspnœa. Wheezing was present in 15% of the cases. Pain over the chest

may be present in a small number. Hæmoptysis was present in 5%. The sputum was slightly tinged with blood in all the cases. Frank hæmoptysis to any extent was not met with in any.

In addition to the above respiratory symptoms there was a history of lassitude, weakness, poor appetite and fever below 101°F. Other cases, had body-pain and headache specially towards the evening. Gradually, after sometime, the patient lost weight and felt very tired. Pain over the joint was present in a few. The majority of them complained of sleeplessness due to respiratory distress.

In a few cases the symptoms were alarming resembling a case of status asthmaticus with severe dyspnœa, cyanosis with prominence of the neck veins, rapid heart beats and sweating over the forehead. The patient opens his windows to get fresh air in order to get relief but in vain. During the attack, the patient is anxious and apprehensive and does not like to talk to any body.

PHYSICAL SIGNS:—In typical cases the expiration is prolonged in many with rhonchi and rales diffusely present in both the lung-fields but most pronounced at the bases. In some cases in addition to cyanosis there may be some emphysema producing specially hyper-resonance on the free margin of the lungs. In a very few cases there may be obliteration of cardiac dullness. The cardiovascular system does not show any abnormality except in some in whom there was present systolic murmur of the second degree in the mitral area together with an accentuation of the pulmonary second sound. Systolic-pressure was on the lower side, varying from 100 to 120, even in middle-aged persons. In a very few cases there was enlargement of the liver, spleen and lymph glands of the neck, attributable to upper respiratory-tract-infection which was invariably present in most cases. Pleurisy with effusion was not found in any of my cases, nor a clubbing of the fingers.

Radiological examination:—The radiological shadows varied very much in appearance. They revealed one or more of the following features or even showed a normal architecture of the lung:—

(1) Ground glass haziness of the lung; (2) coarse or fine reticulation; (3) initial mottling of both lungs; (4) vaguely outlined, irregular, partly confluent patches; (5) broncho-pneumonic or pneumonic consolidation; (6) peri-bronchial fibrosis; (7) pleural thickening or effusion; (8) vascular accentuation extending to the periphery; (9) vascular nodulation and; (10) prominent hilar shadows.

The commonest picture, is the ground-glass appearance produced by the exudate into the alveoli. Nodulation along the

blood-vessels is seen in a small percentage of cases. In my series mottling was found only in 3 cases, while the rest did not reveal any abnormality except some basal congestion and broncho-vascular prominence. The diffuse mottling was not uniformly distributed (one zone of the lung field being more affected than the others; also one lung more than the other). The greater crowding apparent at the base is due to the presence of numerous vascular shadows at the bases. The miliary shadows are of uniform density. There is a prominence of vascular markings extending to the periphery. Occasionally hilar glands are found enlarged in children. An accentuation of the pulmonary conus was noted in heart-shadows.

Changes noted after treatment:—The radiological manifestations may not disappear at all, although the patients may be symptom-free with the eosinophilic count also reduced. The changes disappear gradually from the periphery to the hilum. Soft infiltration in the apex persists very long, even when all other abnormal findings have cleared up. Increased striations clear up leaving only the hilar prominence. Some cases persist even after six months. Pulmonary bases return to normal.

Laboratory investigations.—(1) *Blood examination*:—Total W.B.C. 10,000 to 52,000 per cu. mm.; total R.B.C. 3 to 5 million per cu. mm.; Hæmoglobin 75% on an average; Differential count shows variable features with an eosinophilic count of 15 to 90% which in some, did not come down to normal inspite of treatment. (2) *B.S.R.* was high in all cases ranging from 30 mm. Hg. to 110 mm. Hg. per hour. (3) *Wassermann reaction* was positive in 50 per cent of cases. (4) *Cold-aggultination-test*:—The titre varied from 1 in 16 to 1 in 2048 with an average of 1 in 256 in the majority of cases.

In a few cases intestinal infestation with helminths (round-worm in one and hook-worm in the other) was noted but the absolute eosinophil values were so high that helminths were safely ruled out as a cause for the increased eosinophilia. The urinalysis revealed nothing abnormal. Eosinophils were present in the sputum as also Charcot-Leyden crystals in a few cases. A.F.B. were absent.

Course and prognosis.—The duration of the disease varied from 2 to 3 months on an average. The prognosis was on the whole good. The symptoms generally subsided quickly after treatment but relapses were common. Emphysema, congestive heart-failure or tuberculosis added to the gravity of the condition.

Complications:—They consisted of emphysema, right-sided heart-failure, status asthmaticus, tuberculosis, broncho-pneumonia and collapse of the lung.

Diagnosis:—Diagnosis is made from the typical symptoms, *viz.*, cough, respiratory difficulty, slight fever, weakness and the presence of rales and rhonchi in both the lung-fields with a typical radiological picture and a high leucocyte count with 30 to 80% of eosinophilia.

Tuberculosis, asthma, pneumokoniosis, diffuse carcinomatosis, sarcoidosis, infective mononucleosis, broncho-pneumonia, chronic cor-pulmonale can all be differentiated if the blood examination reveals a high leucocyte count (12,000 to 50,000 per cu. mm.) with an eosinophile count ranging from 20 to 90% and from the typical radiological picture already described.

Treatment:—*Arsenotherapy*:—The mode of action of arsenic in tropical eosinophilia is not known. Carbarsone 0·25 g. orally twice a day or Recolvin with arsenic one to two teaspoonful thrice daily yielded tangible results. Acetylarsan intramuscularly, starting with 1 cc. and gradually increasing by ½ cc. to a maximum of 2 to 3 cc. is given once or twice weekly. Arsenical encephalopathy occurred in two of my cases even while starting from ½ cc. and gradually increasing to 1 to 2 cc. This drug must be used with care. In a few cases N.A.B. was given I.V. once a week with an initial dose of 0·15 g. subsequently increased to 0·3 g. The results in my cases were very encouraging, no arsenical reaction being noted. Urine examination should be done in all cases; with the appearance of even a slight reaction, arsenic should be promptly stopped and B.A.L. given immediately; one patient who developed arsenic encephalopathy died even after giving B.A.L., while another survived.

Antibiotics.—*Penicillin and Streptomycin* have no effect on the eosinophilic count, but if the fever is due to secondary organisms in the lungs they help in bringing down the temperature. *Aureomycin and Terramycin* were tried by me in two cases with good results.

Autohaemotherapy was alternated with arsenic, starting from 3 cc. and gradually increased to 10 cc. in 15 cases. The results were the same as when arsenotherapy was used alone.

ACTH and Cortisone:—These are too costly for free use in Hospital practice, and their value remain to be assessed.

Diethyl-carbamine:—This drug is quite promising and an extensive trial using two to three injections every alternate day is being carried out at present in the S. C. B. Medical College Hospital. The results are awaited.

Summary.—A review is made of the literature relating to the symptomatology, physical and radiological signs, and the results of my findings in thirty cases are discussed.

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EXPERIENCE WITH ARTERIAL REPLACEMENT

Since early 1954, arterial grafting has been performed in 183 patients. A freeze-dried homologous homograft was used in 149 patients and a synthetic prosthesis in 34 patients. There were 25 deaths in all; 21 in the homograft group and 4 in the synthetic prosthesis series. The surviving patients have been followed up for periods up to four and a half years. These studies have generally shown no recurrence of symptoms and a good maintenance of function. The incidence of thrombosis in grafts has been low, less than 5 per cent in the homograft series and about 10 per cent in the synthetic prosthesis series. Instances of thrombosis have been limited primarily to grafts in small vessels (as carotid, popliteal, and femoral arteries). There has been no evidence of femoral dilation of any of the grafts. Aortograms performed as late as three years after graft implantation have shown maintenance of structural integrity of the arterial substitute. While the freeze-dried implants have functioned well, the authors say it is likely that the improved synthetic prostheses now available will largely replace homografts as arterial substitute.—(*Journal of the Tennessee State Medical Association*, January, 1959, H. William Scott, Jr., M.D., James A. Kirtley, M.D., Robert A. Carlson, M.D., and John H. Foster, M.D., Nashville, Tennessee, via *N.Y. St. J. Med.*, 15-12-'59).

RETENTION OF STRONTIUM-85 IN MAN

Professor G. Bauer (Malmo, Sweden) presented some results of the clinical application of a radioactive isotope of strontium,^{81} which had been given intravenously to normal subjects, some less than 18 years old, and to patients with a wide variety of illnesses which affect local or general calcification of bone, mostly cases with simple fractures. This isotope emits gamma rays which can be detected with the aid of a suitable crystal and scintillation counter held close to some part of the body. The use of radioactive isotopes for clinical investigation always involves considerations of safety, and Professor Bauer said that in Sweden the maximum permissible level of exposure for workers occupationally exposed to radiation (averaged over a 13-week period) was taken as the guide to the upper limit of dosage which should be used in clinical studies of the kind he is making.—(*B.M.J.*, Jan. 30, 1960).

MECHANISM AND ASSESSMENT OF INTRACTABLE HEART FAILURE*

AJIT SINGH, M.D. (Pb.),
Department of Clinical Medicine, Medical College, Amritsar

WHEN man gave up his pastoral life forsaking the native pristine scenes and environments and ventured forth to seek his fortune in the city, the wrath of the gods must have followed him. Caught in the maelstrom of civilization, the city dweller has become a victim to the twin threats of hypertensive and coronary diseases from which his country cousin has largely been spared. If the patient did not die of hypertension or of coronary disease, the angel of death keeps other portals open for him *e.g.*, the cardiac failure. Man's genius has no doubt produced magic bullets of therapy but these may give some life and yet impair function. What makes life literally tick is the heart-beat. So long as the heart sounds are still heard, there is life. The function of the heart is to maintain an adequate output of blood at all times, which is nicely adjusted to the needs of the peripheral tissues. When the heart fails, the inability of the cardiac output to satisfy the metabolic demands of the tissues (Altschule, 1938) initiates circulatory adjustments for correcting this deficiency. Whitehorn (1952) has convincingly pointed out the quantitative inability of the cardiac patient to carry on increased activity. Tachycardia, increased stroke volume, increased venous return and hypertrophy of the heart are no longer compensatory but constitute a strain on the already overburdened myocardium. The syndrome of chronic heart-failure then is the result of the failure of the normal cardiac adaptive mechanisms. The cardiac output is augmented by a compensatory increase in the circulatory blood-volume which results from an independent variation of the renal excretion of sodium and water, at times at the expense even of the tissue fluid toxicity. Initially a primary retention of sodium occurs, with water retention as a secondary phenomenon. Since sodium predominates in the extracellular space, fluid accumulates in this compartment, thereby increasing the plasma-volume (Gibson and Evans, 1937), venous pressure, and intestinal fluid-volume which are manifested as œdema.

The adaptive mechanisms are :—1. *Cardiac* (*a*) Tachycardia; (*b*) cardiac dilation and (*c*) cardiac hypertrophy.

2. *Extra-cardiac*:—(*a*) Re-distribution of blood; (*b*) increased blood-volume; (*c*) venous hypertension; (*d*) polycythæmia and (*e*) increased oxygen utilization.

The hæmodynamic principles of the backward failure hypothesis (Hope, 1832) largely determine the distribution of this excess interstitial fluid either in the peripheral or in the pulmo-

*Specially contributed to the ANTISEPTIC.

nary circulation. The ultimate clinical picture is also influenced by such factors as the character of the heart-lesion, salt and water intake, physical activity, local tissue-metabolism and therapy. Perhaps the commonest heart disease seen by the practitioner is chronic heart-failure, particularly, congestive cardiac-failure. And there is adequate reason to believe, that he will be coming across cases of chronic heart-failure in increasing numbers. No matter what the heart disease is, atherosclerotic, hypertensive, valvular, congenital or acquired, the terminal picture is one of congestive cardiac-failure. So with the increasing incidence of heart-disease, the number of cases of chronic heart-failure must inevitably go up.

McMichæl (1952) has summarized the causes of heart failure as:—(1) *Valvular*:—(*a*) Obstructive (stenotic) and (*b*) incompetent (regurgitant); (2) *Myogenic myocardial* (*a*) ischæmia of the myocardium and (*b*) intrinsic and extrinsic myocarditis; (3) *Mechanical* (*a*) pericardial disease; (4) *Extrinsic* (*a*) Physical:—(i) systemic hypertension; (ii) pulmonary hypertension; (iii) Paget's disease of bone and (iv) conditions leading to sodium and water retention. (*b*) Metabolic (i) Beri-beri; (ii) hyper-thyroidism and other endocrinal causes; (iii) uræmia and (iv) anæmia.

Clinical experience in the relief of heart failure has evolved an effective therapeutic routine, the roots of which are buried in herbal folklore, its branches growing into the realms of biochemistry and endocrinology. The beneficial effect of bed-rest, digitalis-administration, diuretic therapy, and a low-salt-regimen have proved the efficacy of this routine, but in long-continued congestive heart-failure, this treatment may prove ineffective. The clinician is dispossessed of these traditional remedies and the patient succumbs to unrelenting dropsy. The inadequacy of treatment in the late stages of heart-failure, has become apparent with increasing frequency, since antibiotics by reducing the hazards of intercurrent infection, have helped to prolong the lives of cardiac patients allowing the heart-failure to continue in its variable course, eventually to persist as a permanent state.

Factors regulating salt and water-retention.—Hollander and Judson (1956) have clearly shown that sodium-retention occurs only in patients with systemic congestion and a significant elevation of right ventricular and diastolic pressure, whereas most patients having pulmonary congestion but with normal venous pressure, will excrete large quantities of sodium and water. Further salt-deficiency can be induced in patients with chronic congestive heart-failure without reducing their œdema and indeed so on occasions, while the œdema is accumulating. Hence it clearly indicates that persistent œdema in these patients must be due to primary water-retention occurring despite the hypotonicity of the tissue-fluid.

It is a difficult task to assess the relative importance of the factors influencing renal tubular function in regard to salt and water-excretions. The major important factors are:—(1) Alterations in renal hæmodynamics; (2) adrenocortical function and (3) posterior pituitary activity.

1. *Alterations in renal haemodynamics*:—Not only is there uncertainty as to the intermediate steps between cardiac failure and the abnormal retention of sodium and water by the kidney but there is also disagreement as to the renal mechanisms responsible for the sodium-water-retention. Three of these have been considered, *viz.*: (1) Elevation of renal venous pressure due to congestive heart-failure; (2) diminution in glomerular filtration of sodium and water, possibly due to reduced renal arterial blood-flow and (3) an increased tubular reabsorption of sodium and water due to chemical, hormonal or other influences.

TABLE I

Showing the renal hæmodynamics in congestive heart failure (*After Heller and Jacobson*)

	In normal persons	In heart-failure cases
Glomerular filtration cc./min.	103	75 (54-105)
Renal plasma flow cc./min.	603	190 (19-313)
Filtration fraction	0·174	0·323

2. *Adrenal cortical functions*:—The adrenal cortex has been assigned a primary role in the regulation of sodium and water chiefly by the endocrine regulation of tubular reabsorption of sodium. The adrenal cortical hormones, (desoxycorticosterone and aldosterone) are powerful sodium-retaining agents. The secretion of adrenal cortical hormones may actually represent an intermediate mechanism in heart-failure whereby the renal tubules are influenced to have an abnormal retention of sodium and water and to the production of the clinical features found in heart-failure. Failure of the heart may act as a stress with a corresponding adrenal cortical response; since impairment of liver function is common in chronic congestive heart failure, it has been suggested that the liver is deficient in its inactivation of adrenal corticoids and an increased amount of sodium-retaining corticoid-aldosterone are found in the urine of patients with congestive heart-failure. The reduction of sodium output in the sweat, saliva and fæces as well as in the urine of patients with heart-failure suggests that the abnormal sodium-retention in heart-failure is not a local renal effect but is rather the result of adrenal-cortical-action on multiple sites including the renal tubules. But at present, it is believed on clinical grounds that patients with chronic congestive heart-failure show an initial co-existent endocrine over-activity followed subsequently by adreno-cortical insufficiency. This premise was supported by the presence of hyponatræmia, a normal or elevated serum potassium

level with an increased blood-urea in patients with chronic heart-failure who had become resistant to therapy with digitalis, a low salt-diet and diuretics.

3. *Posterior-pituitary activity*:—The renal retention of water rather than sodium *per se* causes many of the outstanding features of heart-failure, but water-retention is regarded as secondary to the retention of sodium. The latter in turn stimulates the hypothalamic-posterior pituitary axis to secrete anti-diuretic hormone which acts on the distal tubule to inhibit the excretion of water, without directly affecting that of sodium. The water-retaining effect of ADH results in a more concentrated urine of diminished volume but with no change in the absolute quantity of sodium in the urine. Therefore ADH is not regarded as a primary factor in the accumulation of excessive fluid in congestive heart-failure. Not only is there uncertainty as to the particular renal mechanism responsible for the abnormal retention of sodium and water but there is an equal lack of understanding as to the stimulus which induces such retention. Among the possible stimuli initiating such retention, the following have been considered —(1) Inadequate cardiac output; (2) diminution in effective circulating blood-volume; (3) diminution in cerebral blood-flow; (4) increased volume and pressure in various possible receptor-areas of the venous system; (5) redistribution of blood from the arterial to the venous side; (6) diminished mixed venous oxygen concentration and (7) anoxia of various body-cells or of renal-tubule cells.

Intractable heart-failure.—Despite all the therapeutic measures known to us for the management of a case of congestive heart-failure, patients sometimes do not respond or cease to respond and the manifestations of heart-failure persist or progress. This unresponsive condition is often termed refractory or intractable heart-failure. When confronted with what is apparently intractable heart-failure, the physician should critically and systematically review the case for a possibility of error in diagnosis as well as for possible deficiencies in or complications of the treatment.

I. REVIEW OF THE ACCURACY OF DIAGNOSIS:—The diagnosis of heart-failure is based essentially on two manifestations: dyspnœa and œdema and their variants. Therefore, it is necessary to exclude the numerous diseases which *can* produce dyspnœa or other evidence of abnormal water retention *e.g.*; (1) various broncho-pulmonary diseases; (2) various forms of anæmias, especially those due to chronic gastro-intestinal bleeding; (3) hepatic and renal diseases which are among the more common conditions producing clinical features stimulating heart-failure and (4) rarely metastatic carcinomatosis. Definite evidence of underlying cardiac disease, cardiac enlargement,

prolongation of the circulation time and elevation of the venous-pressure in the upper and lower extremities, are important features supporting a clinical diagnosis of heart-failure.

II. REMEDIABLE FACTORS:—A search should be made for possible factors responsible for precipitating heart-failure or rendering it refractory to treatment, because some of them may be eliminated or ameliorated. Among them are:—(1) hyperthyroidism; (2) anæmia; (3) beri-beri; (4) arrhythmia with tachycardia; (5) rheumatic fever; (6) bacterial endocarditis; (7) pulmonary embolization; (8) hypertension; (9) arteriovenous fistula; (10) hepatic cirrhosis and (11) pulmonary or urinary-tract infections.

(*a*) Masked hyperthyroidism and constrictive pericarditis are particularly overlooked, which are responsible for persistent symptoms of heart-failure. Both conditions are curable with a dramatic improvement of the heart-failure. On the other hand, if overlooked, they prevent the alleviation of heart-failure inspite of the most vigorous application of all conventional therapeutic agents.

(*b*) Not infrequently persistent heart-failure is due to recurrent pulmonary emboli and a relief of the heart-failure may be obtained if embolization is prevented by the use of anticoagulants or by ligation of the veins of the lower extremity or of the inferior vena cava.

(*c*) Similarly anæmia, thiamin-deficiency and infection, especially of the pulmonary or urinary-tract should be detected and corrected when present.

(*d*) When persistent heart-failure is directly or indirectly due to mitral stenosis, coarctation of the aorta, patent ductus arteriosus, other surgically correctable congenital anomalies or pheochromocytoma, the feasibility of operative procedures for correction should be considered.

III. ADEQUACY OF THERAPY IN CASES OF HEART-FAILURE:—Ordinarily heart-failure may be alleviated with moderate restriction in activity, digitalization and a moderate reduction in the sodium intake. Many imperfections in treatment will not necessarily prevent a favourable therapeutic result. But in cases of intractable heart-failure every therapeutic measure *must* be carried out most meticulously in order to ensure success.

1. A limitation in the patient's activity or even complete bed rest may be inadequate in severe cases of heart-failure.

2. When heart-failure appears intractable, it is particularly important that the sodium-intake should be severely restricted to not more than 200 to 500 mg. daily and that adherence to the diet is carefully checked. The occasional response of alleged cases of intractable heart-failure after a few days of hospitalization is usually due to stricter bed-rest and/or