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The Antiseptic

A Monthly Medical Journal

EDITED BY
Dr. U. RAMA RAU
AND
U. KRISHNA RAU M.B., B.S.

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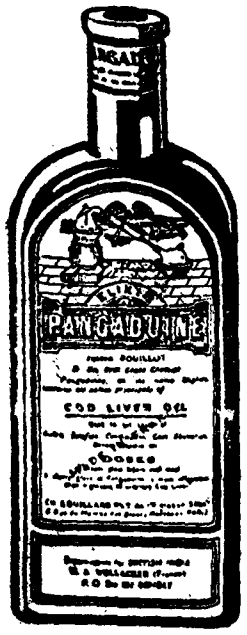

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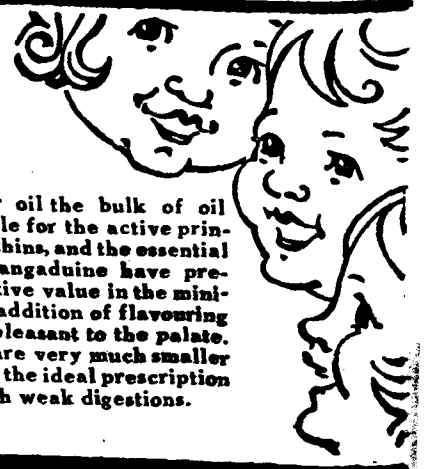

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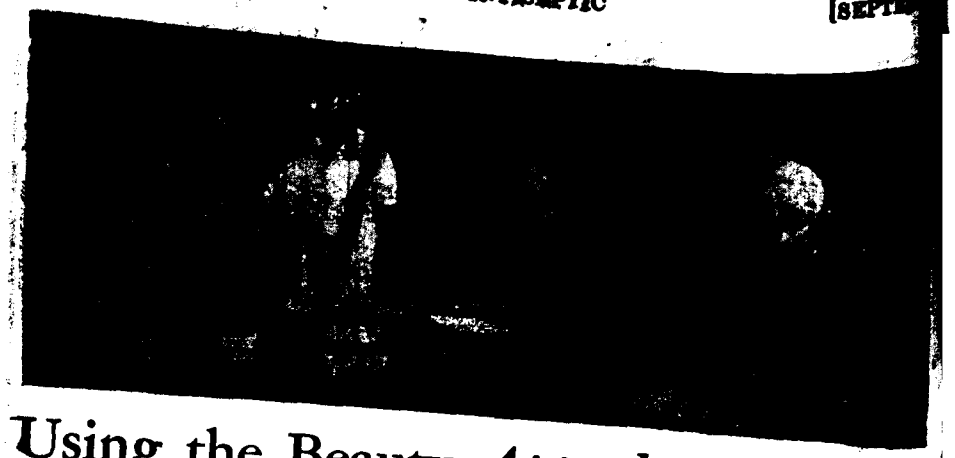

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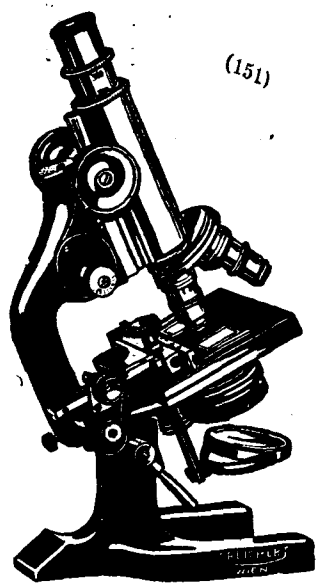

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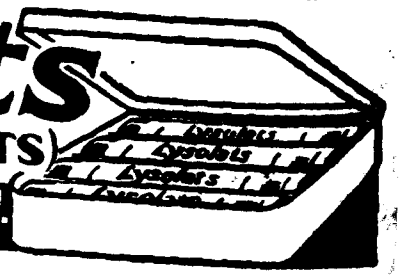

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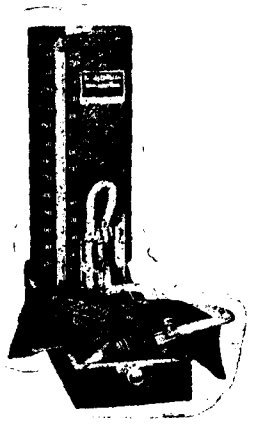

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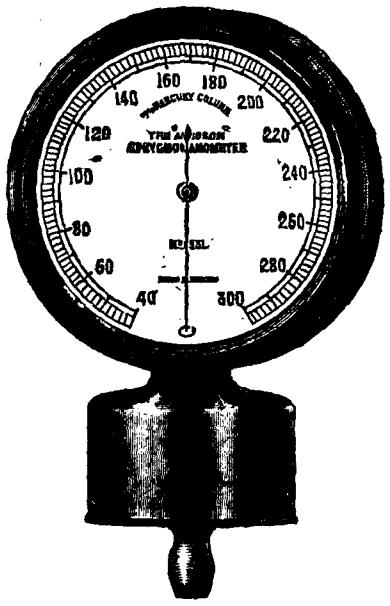

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Vol. 27] SEPTEMBER, 1930 [No. 9

Original articles

* NATURAL SUNLIGHT IN THE TREATMENT OF WOUNDS

BY

DR. B. V. JOSHI, M. B. B. S. (BOMBAY)

Garden Lane, Sandhurst Road, Bombay.

Dr. Bernhard, a pioneer worker in Heliotherapy, who was appointed head of the Wounds Department of the German Army during the last Great War, has given a short account of the results obtained by exposing wounds to natural sunlight. He utilised open gardens and 'green houses' on the way for treating war wounds with sunlight and the results he obtained are simply marvellous as may be seen from the illustrative photos he has published. His results are particularly interesting as they prove that even on the plains sunlight is very useful in the treatment of wounds, and it is not that mountain-sun alone is effective.

India is very rich in sunlight, which, if properly utilised, would serve as one of the most potent remedies in the treatment of wounds. The general practitioner will find it to be of much more use than the costly patent antiseptics, on which he has learnt to rely. Though the oppressive heat in the climate of the

* Specially contributed to the Antiseptic.

Indian plains offer a great impediment to general treatment with sunlight, it serves as a useful adjunct in the treatment of wounds as infra-red rays which are responsible for the heat have proved to be useful in hastening the repair of wounds. The results obtained with artificial sunlight are already well-known in most of the prominent places in India and similar results may be obtained with natural sunlight if proper precautions are taken and exposures carefully graduated. I have tried sunlight in two cases at a place in the Deccan, having hot but dry climate and an altitude of about 2000 feet and the results obtained justify further trial. The cases are as follows :--

Case I:—A girl, aged 15 had a severe attack of plague with a large bubo in the groin. After the acute spmptoms had subsided, the relatives applied hot fomentations to the bubo without consulting the doctor. Suppuration followed, and when the case was shown to me, I found there sinuses discharging very profusely, the bandages and the bed-sheet being drenched with thick foul-smelling pus of a yellowish white colour, though they were dressed twice daily. The patient was very weak and emaciated and was getting fever with rigor every day. The next day an operation was performed and the suppurating glands and all unhealthy tissues (necrotic) were scraped out resulting in a wound about 5″ long 2" wide, and 2″ deep. The pulsations of the femoral vessels could be clearly seen at the bottom of the wound. For one month after this I dressed the wound in the usual manner trying hot compresses and various antiseptics including mercuro-chrome and acriflavine. The patient ceased getting temperature and her general condition improved, but the wound showed no signs of healing and its size remained just the same. An eminent consultant who saw the case was afraid that even if the wound healed contraction of the resultant scar would give rise to permanent deformity and difficulty in walking and œdema of the lower limb due to pressure on the femoral vein. He advised actinotherapy. I decided to try natural sunlight. I started the treatment on the 5th of April. On the first day I exposed the wound to sunlight, coming into the room through an open window, for ten minutes covering the head of the patient and the surrounding skin with bed-sheets at 9 a. m, in the morning. I increased the exposure time by 5 minutes every day and on the 4th day I exposed the wound for half an hour. For the first two days the discharge which was of a thin serous nature increased, but after that it stopped altogether and healthy granulations began to appear slowly. In this connection I found that iodine solution (10 minims of Tr. Iodine to half a pint of boiled water) is very useful in checking purulent discharge and

augmenting the action of light. On the 5th day I exposed the wound to sun at 2 p. m. for 10 minutes. I found that this time is more suitable than the morning time as the heat present in the afternoon serves as a very useful adjunct to the actinic rays in the sunlight. Two minutes after the exposure had started I noticed a thin glossy film on the surface of wound owing to coagulation of the serous discharge. At the end of the exposure I found the wound to be bright red suggesting local hyperaemia. On the 10th day I removed the patient to a terrace on the top floor and continued the same exposure. Here advantage could be taken of fresh air but the precautions to protect the eyes and head of the patient and cover all the other parts of the body with bedsheets have to be more carefully observed. With these exposures healthy granulations increased and the wound healed rapidly. On the 15th day I increased the exposure to 15 minutes and that was the maximum which the patient could bear. The whole wound healed completely, 6 weeks after the sun-treatment had been started. I encouraged the patient to walk as soon as she was well enough. The scar formed was supple, there was no contracture or difficulty in walking and no pressure on the femoral vein. The patient had gained 30 pounds in weight and her general condition was excellent.

Case II:—A boy aged 9 years, inserted his right index finger between the chain and paddle wheel of a bicycle and turned the paddle, resulting in severe crushing injury to the terminal portion of the right index finger. A hole had been bored in the proximal portion of the nail and the nail-bed, the skin had been torn off from the dorsum and the tissues had been severely crushed. I washed the wound, applied Tr. Iodine on the 1st day and exposed the wound for 10 minutes to sun every day at 2 P.M. On the 4th day the nail came off. The wound healed rapidly and on the 15th day I found it completely healed. A new nail had grown in place of the former and there was no difficulty in writing with that hand.

These two cases suffice to justify the employment of sunlight treatment to wounds even on the plains in India.

The *advantages of* sunlight are as follows :—

(I) It is cheap but effective and can be obtained anywhere.

(II) It is abiotic and has bactericidal powers.

(III) It is soothing. It relieves pain and promotes good sleep.

(IV) It increases the growth of normal cells, especially epithelial cells.

(V) The hyperæmia caused by it lasts for a longer time than that caused by hot compresses and counter-irritants. It helps to remove the waste products and hastens repair.

(VI) The scar formed is supple and there is no deformity due to contraction of the scar.

(VII) It helps to improve the general condition of the patient.

The *contraindications* to heliotherapy are as follows:—

(I) If the wound bleeds or if the patient is suffering from Hæmoptysis.

(II) Arteriosclerosis.

(III) If the temperature of the patient rises within 24 hours after treament in case of tuberculous patients, in spite of reducing the dose.

(IV) If there is marked pigmentation, associated with sudden weakness after treatment.

(V) If X-rays or radium, large continuous doses of quinine, injections of metallic salts, or sensitising substances have been previously given.

The *Technique* that I should like to advise for the guidance of the beginner at any place is roughly as follows:—

(1) The patient should be acclimatised to fresh air and diffused daylight before starting treatment if he is in the habit of passing all his time in-doors and being clad in multiple heavy clothes.

(2) All sensitisers such as cosine, pylloporphyrin, iodine, erythrosin, and other dyes should be stopped. Coal tar ointment should not be applied while the treatment is going on.

(3) A terrace, preferably one facing the south, having a small airy room on it should be chosen for treatment, so that, part of the terrace has shade and a part sunlight throughout the day. If the patient is very weak and it is not advisable to move the patient every day, sunlight coming into the room through an *open window* may be utilised until the patient is sufficiently recovered. It is well to keep in mind that glass cuts off most of the actinic rays in the sunlight.

(4) The time of the day chosen for treatment should be between 1 P.M. and 2 P.M. for wounds. For general treatment in the case of tuberculous or weak patients, the time chosen should be from 7 to 10 A.M. in summer and 10 A.M. to 1 P.M. in winter.

(5) The patient should be asked to wear dark goggles during the treatment to protect the eyes. The head should be covered with a thick folded bed-sheet, taking care that the respiration is *not* hampered with. All clothing and dressings should be removed from the wound. The wound should be washed well with a solution containing 10 minims of Tr. Iodine to about ½ a pint of boiled water. All the other parts of the body should be covered with towels or screened from light and only the wound and the skin surrounding it, should be exposed to sunlight. As soon as the exposure is over the patient should be removed to a cool shaded place and the wound dressed.

(6) At any place start with an exposure of only 5 minutes in summer and 10 minutes in winter. After 2 days if everything goes on well increase the dose to 7 minutes and 13 minutes respectively. On the 8th day increase the exposure to 10 minutes (Summer) and 20 minutes (Winter). Then every 4th day increase the exposure time by 2 minutes unless the patient gets weak and exhausted after treatment. Otherwise gradually go on increasing the time until you reach a dose which produces reddish discolouration of the surrounding skin with a smarting sensation if hot water is poured on it. This is known as the erythema dose. This should not be reached at least before the 15th day.

(7) When you reach the erythema dose, decrease the exposure time by 5 minutes and continue the same reduced dose until you find a marked brown pigmentation of the surrounding skin.

(8) Ask the patient to keep regularly a chart of his daily temperature taken at 8 A. M., 12 noon, 5 P. M. and 8 P. M. If you find after starting sun-treatment at any time that the temperature is raised more than usual within 24 hours after an exposure, reduce the exposure time by 5 minutes. If it still continues to rise, stop sun-treatment.

(9) The dose should be reduced if the patient feels weak and exhausted after the treatment. The dose should always be just what is sufficient to produce a sense of relief and energy to the patient.

(10) When the exposure time exceeds 20 minutes, it is advisable to ask the patient to take rest in shade for 5 to 10 minutes after every exposure of 15 minutes. Intermittent exposures given in this way have proved to be more effective than continous exposures.

(11) Maximum dose:—The maximum dose in the treatment of wounds, employed by Bernhard is 1½ hours. But it differs for every place and every patient. The following points should be taken into consideration by the local practitioner before determining the optimum maximum dose for any case at any place.

(1) Constitution of the patient: Individual idiosyncrasy. Fair skins react earlier than darker and pigmented skins.

(2) The part exposed:—Extremeties and abdomen can take larger doses than chest, which should be very carefully treated with short doses only.

(3) Situation of the place:—The higher the altitude, the less the exposure time required. The ultraviolet content of light in villages and open country is much greater than in towns and cities, where the actinic rays are absorbed by smoke and dust.

(4) Season:—Sunlight is strong in summer and weak in winter.

(5) Climate of the place:—Larger doses can be given with advantage in cool bracing climate than in hot climate where the doses must be necessarily small.

Diffused daylight and fresh air:—It has now been discovered that wounds exposed all the time to diffused daylight and fresh air heal much more quickly than those covered with gauze, lint cotton, wool and bandaged in the usual manner. Therefore in the Alpine Solaria, they leave the wound open, protecting it from dust and flies by fixing a sterilised wire-gauze on it with strips of adhesive plaster fixed to the surrounding healthy skin. In places where the air is not so pure perforated dressings like the leukoplast dressings are used so that fresh air filtered through chloroform-gauze gets access to the wound. This method may be tried with advantage here also.

The technique described above is only meant to guide the beginner, and it is not to be followed rigidly to the letter in each and every case. The technique should vary according to the local circumstances, nature of the individual patient, and the progress of the case. Every practitioner will be able to evolve a suitable technique for himself if he tries the treatment in a few cases and keeps careful record of the results obtained.

Naturopathy and physiotherapy are now making rapid progress and may very probably play the chief role in the treatment of many diseases in the near future, putting drugs and radical surgery into background. Sunlight is the most powerful agent at the disposal of naturopathy and the medical practitioners in India will find it to their great advantage if they try and utilise the vast energy which bountiful nature has placed at the disposal of man in the form of sunlight.

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*TREATMENT OF EPIDIDYMITIS

BY

RANGALAL SEN, M.B., B.Sc., *(Calcutta)*.

The treatment of epididymitis has always been a most difficult and interesting subject to the practitioner who is called upon to treat this condition, and in the light of our present knowledge of venerology, should be of interest to practitioners in all parts of the world. Epididymitis may be considered as one of the commonest complications of gonorrhoea and this fact renders the treatment of epididymitis of intense interest to all venerologists, for the recognition and proper treatment of this condition will

*Specially contributed to the Antiseptic.

prevent the developments of that much dreaded complications of sterility and impotency. The writer has observed several instances of epididymitis occurring in individuals who had suffered from recurrent attacks but in whom the true nature of gonococcal infection was not suspected. In other instances, the writer has observed epididymitis in individuals suffering from B. coli infection. The occurrence of epididymitis as the result of B. coli infection is not widely known, the true affection is therefore often attributed erroneously to gonorrhoea or to tuberculosis.

There have been numerous so called "successful" treatments evolved and recommended in the treatment of gonococcal epididymitis but most of them have been found unsatisfactory and inefficient. In fact there is not a single remedy that enjoys the confidence of the venerologists; though a formidable array of drugs have been suggested each having its enthusiastic advocates but the choice is largely one of individual experience.

Prophylaxis. Much has been said to avoid this complication but in spite of gentleness and discretion in the treatment of acute gonorrhœa any practitioner can expect to see a few cases of epididymitis, though in most cases energetic local treatment, vigorous massage of prostate and brutal instrumentation, all may act as a proverbial "last straw breaking the camel's back" and set up acute inflammation of epididymis associated with intense pain which completely disables the patient. In acute gonorrhœa all the patients should be insisted to wear suitable suspensory bandages which will give proper support to the scrotum and will invariably minimize the danger of epididymitis.

Rest. In all cases whether mild or severe the patient should always be insisted to remain in bed and there is absolutely no justification to imagine "mild cases do not require rest in bed."

Postural treatment. The object of this is to ensure immobilization and elevation of testis and when this is followed pain will easily come under control. This is done by strapping with adhesive plaster according to the choice of the practitioner but I think the best way to do it is to support the scrotum in a small pillow between the legs or a piece of broad strapping stretched across the thighs which will act as a platform for the scrotum. This method has a distinct advantage over strapping method of the whole scrotum because we can have an easy access to apply local medicines which are invariably required to relieve pain.

General treatment. Constipation should always be removed and the patient should be insisted to stick to liquid diet especially for a few days during an acute attack of epididymitis; he should also be encouraged to take large quantity of fluids. When the

pain is unendurable hypodermic injections of morphine with atropine may be necessary but it should be used with great caution.

Internal treatment. Free diuresis should be aimed at and ordinary diuretic mixture with bromide is generally useful. Aconite, veratrum viride, gelsemium etc., given internally for pain are not only useless but dangerous.

Local application. There is a long list of fashionable drugs which have been used by well known practitioners but most of them are not only useless but unworthy to receive any attention. In acute epididymitis when pain is unbearable, application of cold in the form of ice-bag in most cases decidedly relieves pain where application of heat has given no adequate relief, though in some cases I have found most encouraging results with dry hot air when used every 4 hours. Ichthyol, lead and opium lotions, saturated solution of mag. sulph; guaacol, antiphlogistin, scott's ointnent, iodex and other much advertised proprietory applications have been tried without any good result. Belladona plaster is by far the superior remedy and it should be given a fair trial in almost all cases. In majority of cases I have tried one ointment which can be employed with perfect assurance that good results will follow. The composition of the ointment is :—

℞

Ung Hydrargyri	ʒii
Ung Iodine	ʒii
Ung Belladona	ʒii
Ung Zinc oxide	ʒii
Ung Methyl Salicylas Co. (B,P.C.)	ʒii

Mft. ung:

This should be rubbed over the painful parts every 6 hrs. The pain will disappear within 12 hours, inflammatory process will be checked and there will a marked tendency to lessen the induration.

Vaccines: In majority of cases vaccines either autogenous or stock have been proved to be a failure, although, they are most frequently employed by the practitioners. Some venerologists claim that detoxicated vaccine when given in early stage, cuts short the attack and how far this is true is left to be judged by the practitioners. To my estimation, it is an extravagant claim to cure epididymitis.

Chemotherapy and allied injections: Our experience regarding chemotherapy is more or less a speculation though in some cases good results were obtained through the employment of foreign proteins by virtue of the peculiar systemic reactions. Preparations such as aolan, yatren casein, intramine, contramine, sulfarsenol etc. have been tried but they all failed to show any beneficial effect. Trimine, a preparation containing 0·1% manganese, 0·01% ferrum and 0·01% Zinc introduced into the market by A.F.D. as Pharmacol Trimine and as well as by Crook's Colloidal Trimine, is decidedly an effective therapeutic combination for epididymitis. My experience with Pharmocol Trimine in 73 cases of acute epididymitis has shown that Trimine has its greatest field of usefulness in the treatment of initial acute attack of epididymitis where its power in causing rapid disappearance of pain in most cases makes it a remedy of great value in the treatment of epididymitis. The action of Trimine is mainly due to the therapeutic value of manganese and zinc contained in it.

Electro-therapy in the form of diathermy is rather a treatment of choice and is only practicable where there is an easy access to electric current. Good results are bound to follow this diathermic treatment and its value therapeutically lies chiefly in the fact that it is the most effectual means hitherto devised of causing a deep-seated local hyperæmia and rise of temperature with the accompanying effect of increased oxidation and elimination and relief of pain and stiffness. My experience in 26 cases has shown that diathermy is more suitable in sub-acute-cases whereas in some acute cases hyperæmia and subsequent effusion following diathermy increased the pain which was not desirable at all.

Surgical treatment: The keynote of surgical treatment should be conservatism. Operative measures should be deferred as long as possible, so as to allow time for other treatment. Surgical interference is only necessary when the pain is unbearable and cannot be successfully checked or minimised by other methods at our disposal. The writer had the opportunity to treat 15 cases of unendurable painful epididymitis in his clinic by puncture and aspiration of globus minor. In almost all cases considerable amount of serosanguinous fluid had to be withdrawn by puncturing globus minor with a needle of large calibre under strict aseptic conditions; this operative procedure quickly relieved pain and tension. In 5 cases I tried the so-called "effective" method of puncture, aspiration and introduction of electrargol into the body of epididymis but I must confess, I had very sad experience; to my estimation, it is rather a brutal treatment.

I have never tried Hagner's open operation advocated by well known venerologists and I cannot say anything about the results of such operative procedures.

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* TIT-BITS ON PEDIATRICS

BY

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To leave my personal impressions of the various chances given to me in my practice for over quarter of a century while attending on the maternity and the new-born is a task most unhappy and teasing, when I am pressed by many of my friends and admirers to give them an inkling of my professional experience by a lecture or lectures. I am always not cold blooded to such proposals, as I have been always foremost to stand before the audience to tackle such vast and important subjects that deal with life and to take lessons from my critics. I have been giving every year my quota of help to the annual fairs and festivals in connection with the maternity and Child Welfare Week and its connected exhibitions at Vizianagaram. I always take limited opportunities to put on paper all those clinical and practical aspects that are useful for anyone of my class, while taking trouble to attend on the new born infants and children.

Before actually putting them on paper for the readers of the esteemed journal "Antiseptic" in the shape of "Tit-bits on Pediatrics," I have a duty to foreword them why I am anxious to do so and with what intention. I was not a serious attendant on sick children during my earlier practical life till 1914 as I was not taught the diseases of the new born and children in my college career (1898–1902 Madras Medical College) nor had I any chances to see them actually noting all clinical peculiarities of such sick infants and children under any specialist as could be done now with ease in the baby clinics or in the children's clinics which were found then to be anomalies and wasteful additional exhibitions to the then existing hospitals in India.

But that eventful year of 1914, which had the first show of the beginning of the Great World War with Germany has had the reputation of opening the eyes of the world to its man power, which was but essential to win the war in toto. The mutual strength that was put into the war area, the total number of war casualties, the shortage of re-mobilization of fresh forces for the field, the peculiar diseases of the war on land, air, and water that played havoc in the total annihilation of battalion after battalion, all and many more put together widened the range of exploitation to seek new forces and sources for preparing an inexhaustible material to meet any further contingency without much ado by conservation and reservation of the new-born all over the world with all the modern researches that would help the maternal care during the period of pregnancy which requires the pre-natal care of the un-born by nutritious diet and good hygienic ways of life and the post-natal care of the new-born in the modern light.

Though the modern warfare has totally eschewed man-power and has shown great strides of advancement thro' machines, aeroplanes, and submarines, by shelling, by bombing and by gassing, it is a wonder why this craze all over the world for the Maternity and Child Welfare has set the ball rolling. What would be its move? Is it for economic, eugenic or social advancement? Whatever it may be, let us consider it for the betterment of the races and the nations that go to feed, ignoring legal and illegal contraceptives, the population of the world for good or bad, by all means reducing infantile mortality.

From 1925 and onwards, with this pressure on the improvement thro' hygienic propaganda of the new-born and the Maternity Welfare, there rose a stupendous responsbility of the State to step in to seek new chairs and specialists for the diseases of the new-born and children in the various Medical colleges and schools of India and in the State aided-hospitals to tackle all those peculiarities of diseases that are incidental to the new-born and children but are quite unfamiliar to adult life and diseases. Hitherto any medical practitioner of India has been notorious to varied general practice even with varying results to his credit. He is always tenacious to take up any case on the strength of his University degree or State diploma, no matter whether it is his province or not. To cite instances, I am not one to poke into others' eyes but facts are facts without evasion or equivocation. For a long time I was also one of this stamp, not knowing my power or capacity for things which were not my sphere, though insufficient and meagre my professional knowledge would have been then with the slow strides of the college education and clinical progress. Once I happened to receive a call from a junior to see his juvenile case. I was told that it was a case of intussception with appendicites requiring immediate removal to Vizag hospital for operation. I took a light view of it and examined closely. It was not. I ordered two grains of calomel, with two teaspoons of castor-oil. Within half an hour, the girl passed pretty good motion, resulting in the lowering of temperature to 101°F. and taking a good draught of milk. It rapidly recovered. Another case of gastric fever treated under the mistaken idea of typhoid with worms. When it was put on strict diet, it was alright. Such and many more indifferent cases treated from a wrong angle are not far to seek. Certainly I admit that all this is due to the

* Specially contributed to the Antiseptic.

inadequate tuition in the medical colleges and schools where medicine is all in all with a false notion that the treatment for the young and old is not materially different and that the out-going degree or diploma holder can treat juvenile cases with impunity and immunity without looking back and ahead, his professional knowledge, to handle the sick infants and children. I was not an exception but did, I believe, many mistakes directly or indirectly, in my earlier days. But now times have been changed to acquit ourselves better.

I am always grateful to the editors of the "Antiseptic" Drs. U. Ramarow and U. Krishnarow, for their ever pleasing encouragement given to me in my last venture "Tit-bits on Tuberculosis" and for their sporting spirit to give me a venturous promise to see my notes on the diseases of children as "Tit-bits on Pediatrics" see the light thro' their esteemed journal. My readers will join me in the chorus which the journal "Antiseptic", deserves at our hands for such encouragement which its worthy editors offer gratuitously to contributors.

So with all the humility of a practitioner I am ever conscious of my meagre college training. But with the progressive opportunities and with self-reliance of intuitive training gained thro' varied literature on the diseases of infants and children and from the Baby and Childre's Clinics of Calcutta and elsewhere, I was bold enough to tit-bit some salient practical and clinical points from my progresss in juvenile cases, that would be interesting to many of my class who have lost or have had not many chances for a thorough training either in the colleges or outside on the diseases of the new-born infants and children. So any drawback or mis-statement is no bar to me to seek advancement and correction from my veteran co-practitioners—Pediatric surgeons, physicians, otologists, and ophthalmologists apart from gynaecologists. shall try my best to take the first opportunity to thank publicly such of them as would put me in the right path, where they find room for correction in my "Tit-bits on Pediatrics."

Tit-Bits on Pediatrics (Practical and Clinical)

1. The sad inroads of the new-born are mostly septic in nature and gain access through (1) the skin (in the process of desquimation which favours bacteria run to the circulation) (2) the umbilicus (which is open to receive infection) (3) the mucous membranes of the intestines, mouth, eye, and ear as avenues for the entrance of bacteria (4) the artificial feeding with its attendant uncleanliness and with loss of the protective bodies (alexins), (5) he careless handling, clothing and nursing and (6) the criminal

negligence of the parents and the State (as in India and Eastern countries)

2. A practical Pediatrist of India classifies the diseases of infants and children according to the age, race, class, environment and nursing. Apart from the climatic conditions that are not peculiar to a certain sect or class, the infants and children do suffer from the respiratoty troubles (3/10), the digestive troubles (5/10). examthimata (1/10) and pertusis and tuberculosis (1/10). Generally up to the tenth year, the children are subjected to such troubles. The Western children are almost immune to some of them where the State steps in to take the part of the parents, whereas the Eastern children are generally exposed to filth, infection, neglect, and famine (milk) which are not rectified by the State in almost in all the Eastern countries and Africa. Not even an exhibition case of indigenous diphtheria is found in India but there may be stray cases among the "white" children from the "outward" bound to India.

3. The mortality of infants is greatest in the first 4 to 12 weeks of life (46%) in India and the various causes that enhance the rate are not far to seek for a close watchful pediatrist, who is quite familiar with (1) the premature and congenitally weak from syphilis, (2) infants too weak to live (still-birth) (3) still-births due to instrumental interference or (manual dragging as generally met with in India by untrained *Dias*) (4) infants at full term who die of infections (Pre-natal) (5) inanition due to faults of feeding (Post-natal) (6) infants premature of good weight subject to constitutional diseases—Syphilis and Tuberculosis. (7) exposure to bad weather, (8) faulty clothing.

4. The only death traps to such rapid mortality among the Eastern children are not far to seek, as it is customary in the Eastern households of the upper and middle classes to stock the "artificial" and "invalids" foods of imported nature, when any addition to the family is expected. One can realise this if the statistics are taken into consideration not from the angle of the State but from the clinical side and experience of a careful practitioner (Indian) who has on many serious occasions to attend on the sick infants and children, who are not "breast-fed" from the middle and the upper classes of society. I shall deal on this later on.

5. Though not known personally much of the West except from the books dealing with diseases of infants and children there is much occasion for me to muse and ponder over the health conditions of an Indian mother from a proletariat class, who is generally in the grip of the labour influences (generally sardars (immoral), hereditary influences from bad par-

ents, illegitimacy, inexperience, and neglect due to fear of rearing and filth infection. A peep into the homes of the labouring and poor class will reveal matters more clearly than said or written like this. India wants waking up to a great extent. Hygienic surroundings and cleanliness are not the monopoly of a certain class but a little thought and will to attain such a healthy equality among the Westerns is not far off to us.

6. One, who has not seen "sudden deaths" among the infants and children in his practice, will be non-plussed to explain any such death to his client unless he probes deep into the causes. So in the interests of the profession, it is found proper on my part to explain the various factors that bring on sudden deaths:—

a. Criminal intent to evade exposure of lapses among the unmarried girls and the young ill-fated and doomed widows of India; (Infanticide).

b. Premature births after a prolonged labour under great exhaustion and meddlesome midwifery by country dias, and inexperienced tyroes of the profession.

c. Atelectasis of lungs.

d. Syphilitic infants though doing apparently well under treatment may be found dead in the crib, as very frequently found in big towns and cities of India.

e. Haemorrhage either cerebral, septic, or hemophelic.

f. Rupture of a cerebral artery into the ventricle of the brain under the pressure of forceps.

g. Congenital cardiac disease.

h. The rupture of the congenital aneurysm, with interestitial myocarditis or fibroid degeneration.

i. The result of an embolus of the Ductus Botalli lodging the pulmonary artery.

j. Valvular heart disease.

k. Erosion of the larger blood vessels by bursting of a retro-pharyngeal abscess.

l. The myocarditic death in pneumonia, typhoid fever, typhus fever, scarlet fever, and diphtheria.

m. Chronic bronchopneumonia in marantic infants and children.

n. Sudden bursting of a cheesy tuberculous or acutely inflamed gland.

o. Lodgement of food or fluids above the larynix through the loss of sensitiveness in the pharyngeal mucous membrane, (may occur during sleep by upward lodgement of food from the stomach).

p. Congenital atresia of the trachea or pressure on the trachea by some enlarged lymph node or congenital tumour.

q. Undiagnosed cerebral abscess bursting into the ventricle of the brain after the otorrhea has run its course.

r. Embolism from the umbilical haemorrhage.

s. Hyperthena with convulsions;

t. Gastro-intestinal disorder (latent tetany).

7. The surgical causes of sudden death in infants and children are far more fatal than those stocked by other sources, *viz.*, thrombosis or embolism resulting from an injection of toxic or foreign agents in the treatment of nevi, valvulus, appendicites, cold exposure or undue delay in the operation, the rapid evacuation of the pleura in the case of empyema and the subsequent irrigation of the pleural cavity causing direct insult to the heart or by a change in the blood pressure acting in a reflex manner on the vital centres, the epiglotic stricture due to pertussis or active inflammatory odema of the bronchi, mycotic infections and foreign bodies obstructing the air passages, the rapid evacuation of the cerebro-spinal fluid to relieve tension in meningities, the pressure of a tumour or fluid (hydrocephalus) in the brain, and the lympha dinimic children, and fatal haemorrhage from the umbilcus with loose tie or no tie.

8. Every pediatrist of India ought to know well that there is always the danger of over feeding an infant on the bottle and the increase in weight thereby is not as regular as in the breast fed infant. The average infant at birth weighs 3450 grams, twice the initial weight at 6th month $\frac{20}{15}$ or $\frac{21}{10}$ lbs. at the 12th month. The length of the body and the measurements of the head and chest vary with (1) race, (2) nationality, (3) antenatal care of the maternal period of pregnancy with good feeding, light work, sufficient light and fresh air. This is almost noted down by any careful observer in his varied maternity practice in India.

9. The time of closure of the anterior and the posterior fontanels is of the utmost clinical importance. If the anterior fontanel is not closed by the 15th month latest, it is certainly a case of rachitis, one of bottle-fed and of a hereditary syphilitic nature. In about 2 months generally the lateral and posterior fontanels close. (I have seen a case where all the three fontanels remained as they were to my surprise till 1½ years even under ordinary circumstances *i. e.*, healthy parents without syphilitic taint, plenty of milk with the mother and normal growth under careful nursing It is still a mystery to me (*Paparow*).

10. A rachitic chest is pointed at the sternum forming a chicken-breast and shows a marked flaring of the lower ribs with a lateral incurvation above this flaring or flattening at the sides and

deeper at the sternum and while at times putting on a "beaded" appearance which is also characteristic of hereditary syphilis.

11. The bottle-fed baby excretes a greater amount of Co_2 and water by the skin and lungs than the breast-fed and this is explained by the fact that the bottle-fed takes in its food a greater amount of nitrogen than the breast-fed.

12. Though not essential it is better to know that the circulation in the new-born infant is completed in 12 seconds; in the child of three years and up to the 7th year, in 15 seconds; in the child of 14 years, in 18 seconds and in the adult, in 22 seconds (Viororat). It is also advisable to know the rapidity of the pulse at the various ages of infancy and child-hood (as given under by Bednur) which helps one in his routine examinations in a baby clinic:—

Featus (in utero)	108 to 160	Per minute
First 2 minutes of life	72 to 94	...
Fourth minute of life	140 to 208	...
Eigth day to 2nd Month	96 to 130	...
Second month to 21st Month	96 to 120	...
Second to 5th year	92 to 108	...
Fifth to 8th year	84 to 100	...
Eighth to 12th year	76 to 96	...

13. It is also incumbent on the pediatrist to know (1) the pulse respiration ratio in infants as 3 or 5 to one and (2) the respiration pulse ratio as 1 to 4 in infancy and 1 to 5 or 6 in the 2nd year. This is no rule, as turning, crying, coughing or any excitement will increase this ratio from 15 to 30 per minute. (It is left as a mystery why after the third month the pulse is more rapid in girls than in boys). Clinically such ratios will help the doctor (attending) in Broncho Pneumonia and other infectious fevers.

14. The rhythm of the pulse in infants and children is normally irregular and dicrotic. This is more marked in children who are subjected to cardiac disease, whooping cough, (heart strain), typhoid fever and unusual excitement (as in convulsions), and rheumatic fever.

15. The temperature of the new-born infant will at times help the midwife or the gynaecologist whether to give artificial respiration to resuscitate the so-called "still" baby. Some of the new-born infants shall have no normal temperature (rectal always ranging from 99·3° to 100° F.) though it is possible to resuscitate such as is usually found in premature or weakly infants. The daily fluctuations of temperature are more uniform and regular in the breast-fed infants as compared with the bottle-fed infants

EYE, EAR, NOSE & THROAT

Special Number of the Antiseptic Oct. 1930.

In lieu of the ordinary issue of the Antiseptic for Oct. 1930, the above special number will be issued. The Editors hope to publish the following contributions in that Special number. Subscribers to the Antiseptic will get the Special number free. For others the price will be **Rs. 2.**

Notes on the occular manifestations of the affections of the Para Nasal Sinuses by Dr. J. M. Damany M.B.B.S., F.R.F.P.S.G., D.L.O. (Lond.) D.O. (Oxon) D.O.M.S. (Lond.) Hon. Aural Surgeon. G.T. Hospital, Bombay.

The Surgical Removal of Tonsils and control of Hæmorrhage by Dr. P. V. Cherian M.B., D.L.O., F.R.C.S.E., Ear, Nose and Throat Surgeon, General Hospital, Madras.

Keratomalacia and Small-Pox by Dr. E. V. Sreenivasan, M.B.C.M. Eye Surgeon Hon. Ophthalmic Surgeon, Govt. Royapetta Hospital, Madras.

Aetiology of Senile Cataract by Dr. Ram Kishan Handa B.Sc., M.B.B.S., Sir Gangaram Free Hospital, Lahore.

Some Vagaries of the Common Cold by Major A. K. Nandi. M. B. Burdwan.

Cataract Extraction with conjunctival Bridge by Dr. R. P. Ratnakar D.O., Oxon D.O.M.S. Lond. D. Cho. (L'pool) F.C.P.S. (Bom.)

Suppurative Inflammation of the accessory sinuses of the nose. by Dr. H. B. Mylvaganam F.R.C.S. Bangalore.

Leprosy as it affects the Ear, Nose and Throat by Dr. G. Raghunatha Rau D.M.O. D.T.M. Medical Officer, Leper Asylum, Cuttack.

Surgical treatment of the affections of the Pharynx and Fauces by Dr. Suresh Chandra Das Gupta L.M.S. Senior Surgeon and offg Chief Medical Officer, Bir Hospital Nepal.

Cataract Operation as performed at the Mayo Hospital by Dr. Jwala Prasad B.A., M.B. House Surgeon, Mayo Hospital, Jaipur, Rajputana.

Some Common Diseases of the Ear Part I by Dr. S. V. Nathan L.M.P. Madras.

Notes Concerning Cataract Instruments by Dr. Raghuber Saran Agarwal, Ram Eye Hospital, Buland Sahr.

Gonorrhœal Ophthalmia by Dr. J. C. Basu Chowdhary L.S.M.F. Formerly House Surgeon [illegible] Eye Hospital Agra, now Medical Officer I/c of St. John's School Dispy., [illegible]

Nasal Discharge and its treatment by Dr. Kali Gati Banerjee, Suri, Birbhum Bengal.

(Marfan). Rise of temperature in infants and children is dependent on various causes—crying, excitement (fright), exercise, running, infectious fevers and ingestion of hot food—milk or otherwise, but it is always at maximum at mid-day or after-noon and at minimum in the morning and evening. The following table of body temperature (rectal) will help one in children's clinic :–

New-born infant	...	99·5° — 100·2° F.
5 to 16 months	...	99·3° — 100·2° F.
20 months to 4 Years	...	99·5° — 100·2° F.
5 to 9 Years	...	99.6° — 100·1° F.

(Lachs and Alix.)

AN INVESTIGATION INTO THE CAUSE OF THE RECENT EPIDEMIC OF BERI-BERI AT BURDWAN.

BY

MAJOR A. K. NANDI, M.B.,

Burdwan.

(Continued from page 310 of the Antiseptic for May 1930).

WHAT CAUSED THIS EPIDEMIC OF BERI-BERI AT BURDWAN?

This is a question the answers to which would possess more than an academical interest. An attempt at a solution of the problem besides being instructive in itself may, in the process, reveal facts regarding the causation of the *epidemic* of which we might not have had the faintest idea. Beri-Beri may, as a result of such investigation, be found not, for aught we know, to be a mere "Deficiency disease" after all, but that other factors of a more active nature than that of a condition of a mere chronic deficiency feeding may be brought to light as intimately concerned in its causation. A serious attempt along this line should be made by persons qualified to undertake the task—e.g., the members of the various research associations—which would be found at once interesting and instructive, and the result thereof fit to claim its legitimate place among some of the highest achievements of **Preventive medicine.**

WHAT REALLY CAUSED THIS EPIDEMIC?

Feeding on vitamine-deficient rice, the staple food of the Bengalees would, by itself, be a lame excuse, and not go any long way. A careful inquiry instituted specially for the purpose has failed to show that people varied their source or the quality of their rice in any noticeable way *before* or *during* the course of the epidemic. No, the easy-go-lucky people of the semi-somnolent town and the suburbs of Burdwan cannot remember having effect-

ed any *noticeable* alteration in the quality or the source of their rice within the last year or two, And, yet Beri-Beri raged among them in the epidemic form with frightfully lethal consequences!

Could it be the wheaten flour? Here, again, they have the same answer to make—no noticeable change introduced in that commodity either, within the last year or two. Why, they themselves feel surprised at the advent of the *epidemic* at all, as they cannot remember having made any unusual departures from their sleepy routine of daily life for the last five years, at least! Why, then, should they have this maiming and killing *epidemic* let loose among them? They believe they have done nothing to merit this uncanny visitation.

Regarding rice, inquiry elicits the fact that people in the remote villages, who have been using rice husked in the right indigenous fashion (dhenki-husked rice) for ages, have been known to suffer in the course of this epidemic from the disease in numbers. No, rice alone will not account for the epidemic incidence.

Investigations regarding mustard oil and Ghee are attended with the same invariable result—*no material change effected wittingly*. These products are very well known to be highly adulterated, and that the genuine stuff under either head is not to be had in the market for love or money. But, then, people have been using this "vile stuff" for years and not suffered for it until recently—if really, the suffering was attributable to it.

Such is the trend of the simple answer made by the simple people. But then, it is very possible that beri-beri is but a symptom-syndrome engendered very very slowly in the human system as a result of *feeding on vitamine—deficient food-stuffs over a long time*. Such food-stuffs, considered collectively, being only *relatively* deficient in vitamine or vitamines, always take time to give rise to the symptom-syndrome, and *never* with that rapidity as obtains in Polyneuritis Avium induced experimentally.

POLYNEURITIS AVIUM AND HUMAN BERI-BERI.

In such experimental cases the birds are fed on *polished rice only*, which is *absolutely deficient in vitamine* B. Under such circumstances the birds show microscopic signs of neuritis *within* a week, and the disease in its developed form *after* a week. An average man in Bengal, however, consumes other stuffs in addition which may, and do, contain a certain percentage of the vitamine or vitamines concerned. Thus, broadly speaking, the water-soluble vitamine B, is found in almost all natural foodstuffs.

Its principal sources are:—

(*a*) The seeds of plants.

(*b*) The eggs of animals.

(*c*) It is also found in highly cellular tissues, such as the heart and liver.

(*d*) It is particularly concentrated in rice, bran and also

(*e*) in yeast.

(*f*) In pulses, like peas and beans, it appears to be distributed throughout the seed.

(*g*) In cereals, like rice and wheat, it is concentrated in the germ and in the aleurone layer.

WHAT KIND OF RICE CAUSES BERI-BERI.

The essential difference between the harmful and the innocuous rice is that in the former the germ and the outer layers (pericarp and aleurone layer) of the rice grain are broken up and removed as the *bran* or "polishings" during the process of milling, leaving only the endosperm or carbohydrate portion of the seed behind. **Fraser and Stanton** in the course of their investigation found that those native races that pound their rice by hand, or cure it so that *these outer coatings remain attached to the body of the seed when eaten*, do not suffer from beri-beri.

DIFFERENCE BETWEEN EXPERIMENTAL AND NATURAL BERI-BERI. WHY THE FORMER IS SO RAPID IN ITS ONSET?

It would, thus, appear that the reason why men feeding on polished rice do not develop beri-beri with the same rapidity as the experimental fowls and pigeons, is that the former use other *cereals* (*e.g.*, wheat) and *pulses* in addition which, containing a certain amount of the vitamine B, compensate to a variable extent the absolute deficiency of that "accessory food factor" in polished rice, and the symptoms are, therefore, late in appearing. The experimental birds, on the other hand, receiving none such by way of compensation smart acutely under the *total privation* and develop beri-beri within as short a time as a week or ten days! Herein, perhaps, lies the difference between beri-beri as induced *experimentally* in birds, and that occurring *naturally* in the human subject.

MERE PRIVATION OF VITAMINE B CANNOT, BY ITSELF, GIVE RISE TO BERI-BERI. EVIDENCE IN SUPPORT OF THIS VIEW.

But can mere privation of vitamine B give rise, *perse*, to beri-beri? Experimental facts would suggest the answer **no**, which is arrived at as follows:—

(a) Two sets of birds are taken—A and B. The set A is fed on *polished rice exclusively* (plus water), while the set B receives *no food* but *only water* to drink. Within as short a period as a week the

set A develops microscopic lesions of neuritis, and after a few days more they manifest symptoms of beri-beri. *The members of the set B live into the third and even fourth weeks and, post mortem, show none of the evidences of nerve degeneration.*

(b) Further, **Cooper** and **Braddon** have found that the *minimum* of *rice bran* required to protect a bird from polyneuritis varies *directly* with the *amount of polished rice consumed,* and *does not depend upon the body weight of the bird.* This would seem to indicate that the " accessory food factor" concerned must act in association with carbohydrates, rather than as a direct foodstuff of the nervous system. In other words, *the mere deprivation of vitamine B is insufficient to produce beri-beri; the birds must, at the same time, be given carbohydrates to eat in the form of polished rice.*

The one conclusion these findings lead one to is, that *the "accessary food factor" must play some part in carbohydrate metabolism.*

(c) A third class of facts would appear to warrant the same conclusion. We hear now-a-days of young men in jails going on hunger strike. The game, so far as I can recollect, was initiated some few years back by one **McSweeney** in Ireland. He refused all food and took only water and thus lived up to between 40 and 50 days—I cannot make sure of the exact figure now, but *he survived at least 40 days* and during all this period of privation of food he is never reported to have developed beri-beri!

The game has since been taken up in India, but none of the hunger strikers who refuse *all food* have ever been known to suffer from beri-beri.

Who dare doubt the honesty of **Mahatma Gandhi**? and he, as everybody knows, went on a long fast total and absolute, just allowing himself some plain water to drink. None, however, of the eminent doctors in attendance ever suspected beri-beri in him either *during* the period of the long fast or *after* this was over.

VITAMINE DEFICIENCY THEORY OF THE ORIGIN OF BERI-BERI. TWO MAIN VIEWS.

Thus, there are two main views regarding the causation of beri-beri from vitamine deficiency, and the object of each is to show how, exactly the absence of an "accessory food factor" produces the disease. These views may, briefly, be stated as follows:—

I. That the vitamine in itself is necessary for the nutrition of the nervous system, of which it is an essential building stone. When a diet is lacking in this factor, the nervous system slowly degenerates until the symptoms of beri-beri manifest themselves.

II. That the vitamine plays some part in carbohydrate metabolism, and that beri-beri is the result of a disturbance of the carbohydrate metabolism when vitamines are absent.

Experimental data and a careful study of facts as occurring ordinarily in life, as already shown, would appear to warrant this second view.

AGENCY OF FACTORS OTHER THAN VITAMINES ALSO PROBABLE.

Vitamine deficiency may, indeed, be the *essential* requisite in the causation of beri-beri, but there are certain subsidiary factors whose influence along this line is by no means to be ignored. Thus, it may safely be stated that any lowering of the general resistance, however caused, is likely, given the necessary food restrictions, to lead to the *rapid development* or the *unmasking* of beri-beri. Thus, it often makes its appearance during pregnancy or lactation, after surgical operations, or during convalescence from infectious or debilitating diseases, such as dysentery, jaundice, malaria, typhoid, etc. which are admittedly, *adventitious* factors but none the less operative in the *rapid development* of the disease or its *unmasking when this is present in the latent form.* It is further to be remembered that an almost *exclusive* diet of polished rice is extremely poor in Proteins and Fats, and leads to a *general* state of *mulnutrition* and *lowered resistance.* Thus it is that beri-beri finds a congenial soil and develops and thrives best in a system depleted through whatsoever cause, and no place in India, perhaps, (and needless to say any place outside India) can approach Bengal in so far as this fact of depletion is concerned—*a system of chronic underfeeding to which is superadded such homely means of depletion as malaria, dysentery, etc., etc., etc.* Is it any wonder, then, that the recent epidemic should have set up its headquarters in one of the notorious districts of Bengal?

ACUTE AND CHRONIC BERI-BERI.

Beri-Beri, from the accounts of research workers like **Fraser** and **Stanton**, takes only *weeks* and not months and years to develop, and unless it can be shown that there had occurred any marked " food deficiency " among the residents of Burdwan during the *two or three weeks preceding* the onset of the epidemic and continued for sometime *during* the course of it, the **Fraser-Stanton** theory apparently falls to the ground. It would only be fair, however, to point out in this connection that the **Fraser-Stanton** theory refers to the occurrence of beri-beri in the *acute* form. A *chronic* " food deficiency " of a *partial* form may, however, give rise to a form of beri-beri eminently *chronic* in its evolution.

The symptoms characteristic of this *chronic* form of the disease may be so slow to appear and, at the outset, so very faint and vague in character, as almost to elude detection. Not so with *acute* beri-beri, where the symptoms—which unmistakably arrest the attention like the uplifted hand of the policeman controlling vehicular traffic on the congested cross road—are marked from the time of their emergence and of fairly rapid evolution.

Can there be *beri-beri of* such *essentially chronic evolution*? Certainly. But would the existence of such a form of beri-beri among the people *by itself* explain the *acuteness* of the *epidemic*, itself of rather rapid evolution, as that we had of late at Burdwan? Never. Would *the acute form* do so? It might; but, then, its existence, its genesis in point of time, and the events leading up to its nativity have to be substantiated first before the charge can be laid at the door of the *acute* form.

One cannot remember having heard of "official" cases of beri-beri occurring at Burdwan before the last twelve months. The twelfth month from now (October 1929) is about the anterior limit when people used to stare hard at the pronouncement of the uncouth diagnosis of "beri—beri" having been made. But, then, the diagnosis was less often meant as a serious scientific pronouncement and frequently as an evasive way of labelling a complex of rather unfamiliar symptoms. But in spite of this half jest the wolf did come and advance slowly into our midst.

Regarding its mode of occurrence, the disease seemed of quite content with the modest "sporadic" garb for the first three or four months following its appearance at Burdwan, after which it became more ambitious and began to exhibit signs of a grave restless discontent with respect to the so far homely nature of its activities, and thus the epidemic started.

The cases, thus, at the outset were chiefly "sporadic" in character, and these *not* of the acute form. Even when the epidemic did start, the cases were mainly of the so-called "wet" form, the "dropsical" variety preponderating by far in the majority of the cases.

WHAT MADE THE DISEASE ASSUME EPIDEMIC PROPORTIONS?

1. There is no reason to assume that it suddenly turned its coat and from remaining the mild, homely, *chronic* dropsy transformed itself, as if by a wave of the wand, into the *furious* disease that knoweth no mercy. The facts observed do not warrant any such supposition. Rather, *an unaccountably large number of cases* mostly of the *mild and sub-acute types* began, without apparent

reason, to thrust themselves upon the notice of the medical profession.

2. No evidence of "food deficiency" of any *glaring* character that might, possibly, account for such a fulminating outbreak is borne out by facts. A searching inquiry has failed to reveal the presence of any such event that might account for a general flaring up of the disease.

3. There has been no marked change in the sanitation of Burdwan immediately preceding the epidemic or during the course of it. No honest man, however much out to oblige, will find it possible, even by the utmost latitude of courtesy of which he is capable, to designate the sanitation of Burdwan, a municipal town as anything approaching "satisfactory". Such being the usual course of events, it would be a bit difficult to comprehend how the sanitation could be rendered worse. In fact, inquiry has failed to discover any unusual departure from the normal sleepy course of events sanitary as controlled by the municipality.

During the rains, and *sometime after the epidemic had reared its head*, the filtered drinking water had, indeed, become undrinkable from the presence in it of objectionably large quantities of alum and chlorine used in its purification. But, then, this had happened sometime *after* the epidemic had started, and thus can, in no way, be said to have originated or precipitated it. Likewise, outbreaks of diarrhœa, dysentery and cholera, which, for reasons stated above, must rightfully demand a more or less permanent home at Burdwan, and have, indeed, relieved the monotony of the melancholy situation, cannot be said to have done the same. These, in short, merely provided the frills and fringes to the gown of the epidemic of beri-beri which was there already.

4. Adulterated "Ghee" and milled "mustard oil" have been in use by the people for months and years, and there cannot be demonstrated any *sudden change in the quality* of these commodities for the worse. Even if this were the case, the fact of the appearance of the disease among people who do not use such articles. *usually*, would remain unexplained. People consuming home-made "ghee" and genuine "mustard oil" extracted by the right indigenous method have also been known to contract the disease.

We are, thus, left faced with the naked question—"why should beri-beri assume *epidemic* proportions among all classes of local people—people who regularly consume poisonous articles of food and people who do not do so, usually—*all of a sudden*"?

Even assuming that some of these people have been living on de-vitalized foodstuffs, it would be very difficult to show that they all of a sudden and *all at the same time* got into that condition of

depletion when the symptoms of the disease manifested themselves. Even new-comers to the place, who have had not the misfortune to live on the "vile stuffs" for any length of time, were not spared in all cases. It must, further, be kept in mind that *all* the sufferers were Indians, and the largest majority of them Bengalees.

THE "CAUSE" OF THE EPIDEMIC JUST MADE LATENT BERI-BERI PATENT IN PEOPLE ALREADY HARBOURING THE DISEASE, AND THIS IT EFFECTED QUICKLY.

The "cause", whatever it was, that precipitated the *epidemic*, must have been one of such a character as was *able to operate equally on all people at the same time* rich and poor; people living in sanitary surroundings good, bad and indifferent; people not consuming adulterated foodstuffs and those doing so etc., etc., etc. It was, however, in this last class of people, in whom owing to the intake of devitalized foodstuffs over some time beri-bri lay *dormant*, that the "cause" had its full force of the blood.

Beri-Beri, in other words, *was present among this last class of people but only in a latent form; and it just required a strong shake-up of some particular kind to make the disease patent in all such people.* And this the "cause", whatever it was that precipitated the epidemic, did do. It made every molecule in every man's system subject to its influence dance to a music unknown before, with the consequence that the seeds of beri—beri that lay hidden for days in the system were brought out to the surface and, thus, to the light of day. In other words, people harbouring the disease in the *latent* form, but not in the least wise that they did so, were taken by surprise to find themselves exhibit its symptoms without notice. and *very many people did this more or less simultaneously or in quick succession*; and this accounts for the unexpected appearance of the *epidemic*.

It must, therefore, be clearly understood that the "cause" whatever it was, which was responsible for the appearance of the *epedemic did not give rise to beri—beri de novo*. It just dragged the disease to the light of day only in those who did harbour it in the darkness of their system. In other words, it only made the disease *patent*. It never *generated* the disease in such who did not harbour it already in the latent form.

What could have been this baffling "cause"? Was it all material and, thus, subject to the methods that govern the investigation of matter or, was it something otherwise—spiritual?

The question is, indeed, plainly, put, but the reply should never be expected to be correspondingly easy to make. The "cause" of the *epidemic* in question has been so subtle and elusive

that it would seem qualified enough to belong to the latter category. I would, rather follow the path of the triumphal march of the epidemic and endeavour to back my observations by statistics of an official nature.

But has not there been enough of monotony already, and may I, with the permisssion of the reader, suggest just for the present a little digression and ask him to uplift himself for a while into the sublime regions of limitless space? The insipidity of the official statistics can, thus be deferred to a subsequent page.

SOME PLAIN FACTS REGARDING THE PLANETS.

The heavenly bodies that begem the firmament at night and compel the wonder and admiration of every person with a soul to feel, fall into two very distinct classes with respect to their relation to our little mother Earth. One of these classes—and this is a very insignificant one as compared with the galaxy and majesty of the other—comprises a sort of colony of which our Earth forms a member. These heavenly orbs are called **Planets** meaning, literally, **wanderers**. They are *eight* in number *including the Earth*, and *circle round the sun*, which forms the fixed centre of the group. Their names in the order of their distance from the sun, are **Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus,** and **Neptune, Mercury** being the smallest member of the group and placed nearest to the sun is rarely seen, being engulfed by the superb radiance of that central orb. Sometimes, however, when the sun is about to set and the sky is clear, **Mercury** can be seen as a *solitary spot of tiny light*, the only one spot, there being none others visible at the time. **Neptune** being farthest away from the sun, and therefore placed at an inconceivably great distance from us, is *never visible*, while **Uranus** the planet coming next to **Neptune**, is *almost invisible* for the same reason. The *eight planets together with the sun*, which forms the centre and life of the colony, collectively form what is known as the **Solar system**. The planets together with the sun are but *masses of burning gases and molten metals which are slowly cooling down*.

The **Sun** possessing the largest *mass* of all (mean diameter—866,400 miles; volume--1,310,130 times that of the earth; mass—332,000 times that of the earth) is the *hottest*. **Neptune** and **Uranus** **Saturn** and **Jupiter** each possessing a much lesser mass than the sun have cooled down more than the sun, indeed, but are *still molten masses of metal and burning gases*. **Mars, Earth, Venus** and **Mercury**, each possessing a still smaller mass than the above, have cooled down sufficiently to attain the *solid* state.

The other class of heavenly bodies are the **Stars**, *each a sun very much bigger than ours, and lie entirely outside our solar system.* They would, therefore, not be considered in this account which concerns only the **Planets**.

The colony of planets to which we belong forms a compact little family swimming in an immense void. It would, perhaps, be better to take them up one by one and consider each separately.

The Earth.—The planet that concerns us most intimately is, of course, our dear old mother **Earth**. Judged by *terrestrial* standards, this is a mighty globe (mean diameter 8,000 miles) bounded by a crust of rock many miles in depth. The great volumes of water which we call the "oceans" lie in the deeper hollows of the crust. Above the surface of the Earth an ocean of invisible gas, the "atmosphere," rises to a height of about 300 miles, getting thinner and thinner as it recedes from the surface. *The Earth turns round its axis once in 24 hours,* and this gives us day and night. This movement is called the rotation of the Earth.

In addition to this movement of rotation, *the Earth revolves round the sun once* in 365 days, and this gives us the year. This motion is tremendous, attaining a speed of *more than* 1,000 *miles a minute.* (More accurately 1103½ miles). The path it describes round the sun in its annual pilgrimage is an elliptical one, and is called its orbit, and is about 580,000,000 miles in extent. Like the Earth all the other planets whirl round the sun in an elliptical orbit.

The *mean distance* of the Earth from the sun is about 92 millions of miles.

The *mass* of the Earth is about $\frac{1}{332,000}$ that of the sun, and its *volume* about $\frac{1}{1\,310,130}$ that of the sun—a very small fraction in each case.

The Earth is held fast to its orbit during its insane whirl by the tremendous amount of the gravitational pull exerted on it by the sun, the mass of which is ever so much greater than that of the Earth. If, owing to some freak of the immutable laws of nature, so far as we know them to be at present, the sun ceased at *any moment* to exert this mighty pull, which is *continuous* in operation, the Earth would *at that very instant* whizz off into limitless space along the tangent to the point where it happened to be at that same moment. This tendency of a revolving body to fly off at a tangent is *continuous* (and is called the centrifugal force) and must *as continuously* be met by some opposing force to keep it

from doing so. It is, thus, the balance between the Earth's centrifugal force and the sun's pull of gravitation that keeps the former orb to her orbit.

The other seven planets are held to their respective orbits in the very same way.

(*To be continued*).

*THE VALUE OF INDIAN EPHEDRA IN THERAPEUTICS

BY

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The facts connected with the alkaloid ephedrine puzzle one, for the delay in its coming to prominence is inexplicable. It appears that the ephedras have long been used as empirical remedies in many contiguous parts of the world. It has been in use in China for over five thousand years as a circulatory stimulant and as a sedative in cough. In 1887 the alkaloid was isolated from the plant Ma Hung by Nagai and its physiological properties were reported the same year. In 1893 its isomer Pseudo Ephedrine was isolated from the European species but it was several years later that the pharmacologists of the Peking Union Medical College undertook to study the alkaloid systematically. In America a number of ephedras were used in the treatment of syphilis, gonorrhoea and as local application in various conditions. The value of the drug and the impression that the natural source from China was limited led the German scientists to attempt to synthesise the alkaloid and a compound under the name of ephetonin has been put on the market as a substitute for the natural variety. The revival of the study of the indigenous drugs in India gave an impetus to search for ephedras in India. That a plant by name ephedra was growing in India was known to botanists, for as early as 1890 Watt described in his dictionary of economic products of India at least three varieties of ephedra. E. Vulgaris or E. Gerardiana is a small shrub with stiff stem occurring throughout the Himalayas especially around the Simla hills at an altitude of about 10,000 ft. Ephedra Pachyclada or E Intermedia is a tall shrub found in the Western Himalayas and is considered as the plant used by the ancient Aryans—the "soma" of the Vedas from which the favourite drink of the Rishis was made. The other E. Peduncularis is not so much in use as also two other forms that are scanty i.e., E. Foliater and E. Frogilas.

Though the plant was used empirically in other countries it did not find its way into the Indian indigenous system though its

* Specially contributed to the Antiseptic.

existence was known. It is only the recent revival that has brought the plant to the forefront of the medical world. Two of the varieties growing in India were examined by the Chemistry Department of the School of Tropical Medicine, Calcutta and reported upon very favourably with reference to the alkaloidal content. What is of special interest about the Indian variety is that compared to the varieties tested in China and Europe the Indian variety contains more of the alkaloid ephedrine which is the more active of the two alkaloids found in ephedra. Interesting observations were also made that the alkaloidal content of the various plants growing in India varies with the seasons of the year and place of growth. Plants collected during October to December gave the highest yield of the alkaloid ephedrine. In May and June it was less and the least was in the samples collected in August. The percentage of pseudoephedrine did not show any very marked variation. The alkaloidal content of the green twigs of E. Vulgaris is about four times that present in the stems.

Commercial development.—An idea of the value of the drug in commerce can be had from the following figures. From August 1926 to the end of the year the exports from Trentsin alone and that to the United States alone amounted to 224,058 lbs valued at £17,753. During 1927 they were 622050 lbs and £ 68400 respectively and for the first 11 months of 1928 they were 1,003,700 lbs and £ 69300 respectively (cited by A.G. Ward U.S. Vice consul at Trintsin). In contrast with two concerns one German and one Japanese who were the sole purveyors of pure Ephedrine prior to 1934 the drug is now being prepared by eight firms in the U.S.A. by one in Canada, by 3 in England, two in Germany, three in China and two in India. The retail price of ephedrine previously was about Rs. 1100 per lb. at present it is about Rs. 800.

Pharmacology :—Broadly speaking the action of ephedrine that is of importance therapeutically is its influence on the symphathetic nerves. The earlier workers failed to note the rise in blood pressure in experimented animals as they worked with high doses. Regulated smaller dosage yielded fairly constant results. The sympathomimetic action was not identical with epenephrine though clinically it is applied for most of the condition for which adrenaline is used. The rise of blood pressure is less marked but more prolonged in the case of ephedrine whereas the pressure response of adrenaline is so sensitive that it is being used for assuaging it. The stimulant action of ephedrine on the myocardium is doubtful though with pseudoephedrine there seems to be a little less uncertainty. Miller and Pendergrass (1925) by means of fluoroscopic observations on individuals showed increased strength of contraction. Pseudoephedrine stimulates also the inhibitory and

accelerator mechanism of the heart. There is also reason to believe that pseudoephedrine stimulates the unstriped muscle fibres of the blood vessels. The pulmonary pressure also shows a marked rise-resembling in its action adrenaline.

There is a well marked dilatation of the bronchioles with ephedrine and pseudoephedrine and the turgescence of the mucus membrane is also relieved due to constriction of the pulmonary vessels.

They also abolish the movements of the gut in an animal under chloroform anasthesia Movements of the uterus in situi as well as isolated show marked inhibition if not arrest of movement altogether.

The spleen volume was diminished by injection of the alkaloid but kidney volume corresponded to the blood pressure. The latter has an indirect effect on the kidney function i.e., to increase the secretion of urine.

Though the pharmacological action of ephedrine extends to other systems like muscular, secretory, gastro-intestinal and on blood metabolism etc., its use is restricted so far to only a few disorders.

Therapeuties :—The therapeutical application of Ephedrine for the various affections is still in the experimental stage. The three main conditions for which Ephedrine is being tried are (1) Cardiac affections (2) Respiratory disorders (3) Nervous condition with pain

Cardiac affections :—

A crude extract of the drug with Alcohol (50 %) was originally prepared where 5 c. c. roughly had about ½ gr of the total alkaloid. This preparation was used by Col. K. N. Chopra on patients with cardiac decompensation with very encouraging results. 60 minims of the extract t. d. s., gave a rise in blood pressure of 10—20 m. m., of mercury which was fairly prolonged. A marked diuresis was noticed as well. In a recent outbreak of epidemic dropsy in Bengal Tr Ephedra was given in doses of 10—15 m. t. d. s., with good result. The rise in the blood pressure through the sympathetic mechanism, the stimulant action on the heart, the diuresis produced as a result of increased flow of blood through the kidneys, all combined to produce very good result in cases of Epidemic dropsy where symptoms of cardiac decompensation are prominent. Further investigations are being done with reference to the applicability of the drug in heart failures due to other causes. Sometimes ephedrine increases the decompensation of the heart in a patient with organic disease. In acute circulatory collapse ephedrine had not proved its value. In less

severe cases of shock it works better than caffeine, strychnine epenephrine and Digitalis. Series of cases with hypotension have been reported by Hess in certain forms of pneumonia, pulmonary tuberculosis, cardiac insufficiency and vasomotor weakness—all treated with very good results by repeated doses of ephedrine. A few cases of Stokes Adam Syndrome were treated successfully by ephedrine as mentioned by T. G. Miller.

Respiratory disorders:—Apart from its effect on the respiratory passages which are due to peripheral actions, ephedrine is a stimulant to the respiratory centre resembling caffeine in its effect. Schmidt (1929) found that ephedrine was more regularly effective than any of the conventional respiratory stimulants in combating extreme respiratory depression due to morphia. In addition there is the improved respiration due to better blood supply of the centre due to peripheral pressure effect. The result of Ephedrine action is therefore equivalent to that of epenephrine and caffeine. But ephedrine has a surer use in the treatment of bronchial disorders. Here the most handy form of administering the drug is as a tabloid of the Hcl. (4–5gr.) the alkaloidal content of each being about ½ gr. In Asthmatic-attacks ½ gr. of either ephedrine or pseudo-ephedrine by mouth relieves the condition of spasm—the feeling of tightness in the chest is relieved and breathing becomes fairly normal as after an injection of adrenaline. With ephedrine there are sometimes certain unpleasant side-effects as acute pain in the precardial region, a feeling of distress in the epigastrium etc. Rarely there have been instances of flushing of the skin, tachycardia, tingling and numbness of the extremities etc. Smaller doses of ephedrine may diminish the chances of such effects. Sometimes ephedrine causes constipation which aggravates certain types of asthma. With pseudo-ephedrine these side-effects were not observed. The advantages of these two alkaloids over epenephrine are (1) the former are more easily administered *i.e.* as a tabloid by mouth or as tincture which is just being made. (2) It can be employed as a preventive. (3) It has a more prolonged action though a bit slow in its onset. (4) If administered in graduated doses produces less side reactions. The extensive use now made of ephedrine in the treatment of asthma has fully justified its claim as an antispasmodic in asthma. Cases of Hay fever were treated successfully by ephedrine used as a nasal spray in 3 % solution. It has also been used in whooping cough and bronchitis with fairly good results.

Nervous conditions: Ephedrine produces mydriasis when applied locally in 5—10% aqeous solution or when absorbed into the circulation. Moderate doses of ephedrine in man sometimes cause tremor, nausea and insomnia which in all probability is due

to stimulation of the C.N.S. Its stimulant action on the Respiratory centre is fairly established. The reflex excitability of the spinal cord was also noticed to be increased in dogs under anaesthesia. But the use of ephedrine has been in relation to its action on the peripheral nerves. Addition of 0·005 % of ephedrine to a 1 % solution of novocaine was found to block the motor impulses much earlier in experimental animals than with pure novocaine. In combination with epinephrine and Pot. Sulph. local anasthesia has been produced by Read and Lin similar to that produced by a mixture of similar strengths of Novocaine, epenephrine and $K_2 SO_4$. Ephedrine administered before a general anasthetic in a number of cases relieved the anxiety of the surgeon for the pulse of the patient and the post anaesthetic retching and vomiting were almost reduced to nil. Muir and Chatterjee used Ephedrine as a substitute for epinephrine in nerve pains of leprosy with good result. Ephedrine, they found, did not interfere with the simultaneous use of potassium iodide. The resulting good effect is probably due according to them to contraction of the anterioles of the nerve trumps thereby relieving their vascular engorgement. Others consider it an extremely useful drug in relieving the distressing symptom of lepra reaction. According to them ephedrine like epinephrine is able to control allergic condition a form of which is supposed to be this lepra reaction.

Lang used ephedrine in certain forms of dysmenorrhoea on the assumption that the condition is due to local or general hyperactivity of the parasympathetic system. The results were very satisfactory.

At least two of the manufacturing firms in India have been introducing in the market lately preparations of ephedrine for therapeutic use. They are the Bengal Chemical and Pharmaceutical Works at Calcutta and the Union Drug Co., at Calcutta. Both are Indian concerns, and deserve encouragement by the medical world in India.

Cases & Comments

NOVASUROL—A FEW NOTES ABOUT IT

BY

CAPT. J. M. GHOSH M. B. (CAL.) D. T. M. & H. (CANTAB)
D. P. H. (LONDON.)

Calcutta.

I believe that the consensus of opinion is that it is a very valuable addition to the rather limited list of useful drugs that we have at our disposal, and so a few facts about it may not be out of place in this esteemed journal.

This drug was tried in all sorts of cases, where anasarca or oedema was the most outstanding complaint, irrespective of its cause.

N. B.—A Hindu male child, 8 years old, was a kidney case, passing about 2 ounces of urine. He came with general anasarca and a history of fever, off and on, for about 2 years. During one such attack whilst under observation B. T. parasites were found. Sparteine sulphate anasarcin, standardised Tr. digitalis, quinine, paracentesis and etc. were all tried in vain. Novasurol in doses of .2 to .5 c. c. together with ammon. chloride proved ineffective and the case soon ended fatally.

K. B., H. M. 45, was also a kidney case. He came with anaemia, diarrhoea and oedema. He was passing about 3 ounces of urine in 24 hours. He was put on ammon. chloride and Easton's syrup—the diarrhoea ceased but the quantity of urine remained as before. ½ c.c. of novasurol was then injected and the urine output went up to 48 ounces during the following 24 hours. He began to complain of sorethroat and stomatitis and the next 24 hours saw the urine come down to 25 ounces. .75 c.c. was then injected and the quantity again increased to 78 ounces only to fall back to 22 ounces the next day and so on. He had 7 injections, the maximum dose being 1 c.c. but the quantity of urine did not exceed 78 ounces, which he passed on a .75 c.c. injection. He developed stomatitis twice, once with the initial ½ c. c., dose and again with a 1 c. c., one. He went away relieved.

D. P. H. M. 42 the next case came with general anasarca and scanty urine about 3 months duration. History of gonococcal infection 2 years back. Urine showed a large number of Pus cells, but no gonococcus or tube casts. Urotropine was tried intravenously to no effect. He was then put on ½ c. c. Novasurol without any ammon. chloride. Passed 60 ounces of urine the next day, which however dropped down to 15 ounces in 24 hours. All of a sudden he died of cardiac failure.

H. B. H. F. 50. Another kidney case with general anasarca. Scanty urine. With ammon. chloride alone the urine output increased to 20 ounces. She was then injected with ½ c. c. of novasurol and the quantity was 30 ounces, excluding what was passed with the stools. Another ½ c. c. raised it to 35 ounces including the little in the bed pan. She discontinued treatment as she thought she had been cured.

M. M. H. M. 25, a kidney case with general anasarca and scanty urine. He was put on ammon. chloride and Novasurol. Altogether he had 12 injections the maximum dose being 1 c. c and the highest urine output 75 ounces. This case used to feel faint after the diuresis and he actually showed signs of collapse once during the course; after the third injection he developed slight stomatitis and the dose was .75 c. c. His urine cleared up absolutely. After 7 months when he was last seen he reported "no troubles".

S. C. H. F. 35, a mitral case with œdema and scanty urine. She could be given only one injection of .5 C. C. The urine could not be measured but was reported to have increased. She discontinued treatment.

H. B. H. M. 40, a case of cirrhosis liver (cause unknown) with ascites and oedema legs and scanty urine. He was put on ammon. chloride and novasurol. He had to be tapped thrice. In this case the dose of novasurol ranged between .75 to 1 c. c. and with each injection, the quantity of urine would go up to 90-92 ounces, but he used to feel very weak after it. He discontinued treatment after 4 injections.

Summary—1. This drug is well worth trying in all cases of anasarca.

2. Its effect is very short-lived.

3. It occasionally produces cardiac depression and stomatitis.

4. The dose need not exceed 1 c. c. and that intramuscular injection is quite sufficient for the purpose.

BREAST PROTECTORS FOR MOTHERS.

BY

CAPTAIN SHYAM LAL B.A. M.B., CIVIL SURGEON, BALLIA.

Mothers should be specially careful about their breasts during the period of suckling. Often women deform the contour of their breasts by mere carelessness during this period; breasts becoming pendulous and loose even while they are very young.

Women must know that beauty is the natural gift to them with which they even rule and subdue their more powerful partner the "Man"; good breasts have if not the first at least one of the most important position in the various items of beauty; and to get them deformed is to mar one's beauty for life.

Indian women are generally too free about their breasts to their children and do not care about them. The result is that even after suckling once or twice breasts become loose and pendulous.

English women are on the other hand too much afraid of losing the contour and the beauty of their breasts, and do not often like to suckle their children; though they have also begun to learn that in the interest of their children, they should suckle them themselves.

The following procedure, if followed, will be useful to both.

(1) A child should not be suckled too long at the breasts. Indian women sometimes suckle their children for a much longer period. They go on suckling them up to 3 or 4 years which is entirely unsound and which tells against the health of both the child and the mother.

The physiological period a child should be suckled at the breasts is 10 or 11 months, after which the child should be gradually weaned.

(2) Suckling at the breasts should be resorted to at definite hours during the day and night. Giving the breast indiscriminately to the child whenever the child is weeping is very injurious to both the mother and the child.

Sometimes the child is weeping on account of pain in the stomach due to indigestion or over feeding and giving it the breast is nothing but to aggravate the trouble.

Further after feeding the child full on the breast the breast becomes empty and takes sometime before it is again full. If a mother offers empty breasts to a child, the child drawing little or no milk from it tries to pull hard on it, and if the process is continuously repeated, the tissues holding the breast in position get loose and the breasts lose their position.

(3) After each feed a little rectified spirit should be applied to the nipple and the areola with a little cotton wool. It will specially harden as well as surgically clean the parts. Generally a little scratch caused during suckling becomes the seat of infection; and mastitis and abscess of the breasts generally follow.

The process will protect mothers from the trouble.

(4) Mothers should use breast-supporters of the type suggested. They are nothing else but Indian choolis with some modification. They should be made of easily washable, absorbent and slightly elastic cloth.

The modification is as follows:—The portion of the chooli covering the nipple and about 2½" round about it should be cut open below and at the sides in about ¾ of its circumference; thus forming a flap detachable below and at the sides. This portion should be fastened to the body of the chooli by means of fasteners.

It can be unfastened during suckling and raised up; the child being suckled with ease while the breast itself is still being supported by the rest of the chooli.

ECLAMPSIA

BY

C. VEERARAGHAVIAH L.M.P.,

(*Registerd Practitioner, Panapakkam—(Via) Arkonam*

Eclampsia is an acute toxaemia occurring during pregnancy, during labour or in the puerperium, characterised by convulsions and coma. The etiology of eclampsia is still very uncertain but many theories as to its causation are given in the text books.

SYMPTOMS AND COURSE

The frequent forerunners of an outbreak of convulsions are disturbances of vision, flashes of light before the eyes, dizziness, headache, vomiting; epigastric pain and scanty urine containing much albumen and little urea.

A CASE OF ANTEPARTUM ECLAMPSIA

Previous history of the Case:—Mrs. A. B. a young woman of about twenty was pregnant. It seems she had two or three abortions and one delivery at full term. So she is not a primipara.

One day she complained of disturbances of vision, flashes of light and headache. The very same night she began to have convulsions. I was called in to see the patient the next morning.

Inspection:—On inspection I noticed the typical fits of the disease. The fit was usually preceded by restlessness, with twitching and rolling of the eye-balls. There was foaming in the mouth.

The tongue was bitten. There was a period of coma with deep stertorous breathing. The patient was unconscious for about full two days.

The pulse was of a full tension and there was a temperature of 103°.

P. V. Examination. The Os was not dilated but there was a slight discharge resembling the "*show*".

Treatment. First of all I improvised a gag by rolling a piece of cloth to the end of a spoon and placed it between the teeth so that she might not bite her tongue. I asked her relatives to follow it whenever the fit comes.

A good enema was given. Then a hypodermic injection of morphia ¼ gr. and atropine sulp. 1/100 gr was given. Waited for three hours. There was no improvement. Then ½ c. c. veratrone P. D. & Co. was given subcutaneously.

I saw the patient after three hours. She had a good diaphorisis, the stertorous breathing diminished very much in quality. Fits were coming at very long intervals but their intensity was much less.

I wanted to give her another dose of morphia but the relatives were trying some mantrams (chantings) and so I postponed the injection.

After an interval of three hours I was given to understand that she had pains and delivered a dead child which was quite proportionate to the intrauterine age. I saw the dead foetus.

Then the fits occurred once or twice and stopped completely. Still she was not quite conscious. She had still a temperature of 102°. So I prescribed a diaphoritic mixture with a large dose of pot. acetas and mag-sulphas. I had already given her a dose of calomel which had not worked well.

During the night she had a good motion and passed urine. I had been to see her the next morning. I was quite happy to see her sitting up and answering a few questions. The temperature was normal. She complained that her mouth was ulcerated and paining the cause of which she did not know. (It was owing to the biting of the tongue and the spoon, the previous day.)

The relatives of the patient were complaining that she was uttering some nonsense now and then. It seems she was

laughing at times a stupid laugh. Sometimes "Mental derangement follows eclampsia, but this is usually only temporary".

So I gave her a dose of 30 gr of Pot. bromide to be given in two doses. With this she slept well and was much better.

On the third day of puerperium I saw the patient. She had a temperature of 101°. The relatives complained that she had pain in the breasts. I thought it might be due to retention of milk. So I ordered some belladonna to be rubbed up and bandage tightly. Again I put her on diaphoritic mixture with plenty of pot-acetas Barley conjee and milk were prescribed as diet. On the very same night she began to talk incoherently and was a bit restless. So I put her on bromides and instructed her people to report to me if she did not sleep so that I could give her a dose of morphia.

The next day the treatment was changed by the relatives and I could not see the patient. It seems she was delirious throughout for 4 or 5 days and died suddenly. I could not give the exact cause of death. Perhaps she might have developed puerperal sepsis 'as eclamptic women are particularly liable to septic infection'.

Points to be noted in this case are:—

(1) The premonitory signs of disturbances of vision and the development of typical eclamptic fits.

(2) The urine was loaded with albumen.

(3) The patient was unconscious for two days.

(4) The very good effects of veratrone P. D. & Co. It brings down the temperature, lowers the pulse rate, causes diaphoresis and diuresis and thus tends to eliminate toxic material.

(5) The full recovery of consciousness after the expulsion of the foetus.

(6) She is not a primipara. Eclampsia generally occurs in primipara.

(7) The relapse of pyrexia.

A CASE OF INTRAPARTUM ECLAMPSIA

Mrs. X. Y. a young woman of twenty, primipara. When at full term, she had labour pains with a number of fits. I watched the typical eclamptic fits. I examined the urine and there was albumen.

The pulse was characteristic of high tension. During the intervals of fits she was quite conscious and was able to talk well and drink water.

P. V. Examination:—The os was three fingers dilated. Membranes were ruptured.

Treatment:—I ordered a soap water enema. I gave her an injection of ¼ morphia and $\frac{1}{100}$ gr. atropine sulphas. I left her in

charge of my midwife to watch and report to me further about the case.

The patient came under the influence of morphia. In the course of next two hours she had pains and delivered naturally a living child. The puerperium was quite normal.

The points to be noted in this case are:—

(1) Primipara and eclampsia.

(2) Regaining consciousness in the interval between the fits.

(3) The sedative effect of morphia and the natural delivery.

(4) The child was quite healthy and survived. Usually the child dies in cases of eclampsia or looks very much congested.

(5) The uneventful puerperium.

CASE III. INTRAPARTUM ECLAMPSIA.

History of the case:—Mrs. A. Z. a young woman of 18 years, primipara was in labour pains and fits started with the pains. Pains and fits continued from morning till evening. The illiterate people depended mainly on a barber midwife. When they left all hopes they sent for me.

On inspection I found the patient in an unconscious state. Her pulse was very weak owing to sheer exhaustion due to the fits. She had one or two fits when I was there and they were quite typical of the disease.

P. V. Examinatian:—The os. was fully dilated. It was a vertex presentation. The vaginal canal was much infected.

Treatment.—The patient was in a precarious condition and I did not want to interfere in the case. The relatives wanted me to do my best for the patient.

So I first gave a dose of morphia and atropine and waited for about half an hour and there was no improvement.

Then I put the patient under chloroform and after the usual disinfection of the genital passage I applied forceps. It was a high forceps operation and was a very tiresome one. As soon as the child was delivered her pulse grew very feeble. I injected one c.c. pituitrin and inspite of that the patient expired.

Points to be noted.—(1) The fits continued even after sheer exhaustion of the patient.

(2) The necessity for obstetric interference.

(3) Primiparity and eclampsia.

Probably if the patient was brought for treatment much earlier, she might have survived.

AN UNEXPECTED CURE OF A CASE OF TETANUS.

BY

D. V. G. PANIKER L. S. M. F. ERODE.

On the morning of the 13th instant I received a call to a village some ten miles off from this place, Erode town. The party of men who came to take me told me that the patient, a woman, had been suffering from attacks of fits for the last two days. They also told me that she had a wound on her left foot caused by a thorn accidently pierced some nine or ten days before the appearance of fits. I, naturally thought that it was a case of tetanus and it would be a hard task for me to tackle it. To make matters worse I was at the time not in possession of tetanus antitoxic serum and could not procure it locally either for money or love and as such I put in my bag injection products such as morphia; Hyocine Hydrobromide, atropin sulph, 2 per cent carbolic solution etc. along with other emergency medicines and appliances and proceeded to the place and reached there at about 11 A. M. On arrival, I saw the patient, a middle aged woman of strong and sturdy constitution lying in a most precarious condition getting violent fits almost every ten minutes of a typical tetanus nature. Her jaws were firmly fixed and could not be opened. The relatives of the patient told me that she had about forty fits since 6 A.M. on that day. On examination, I found her heart respiration, pulse etc. good. The surrounding tissues of the wound on the foot were oedematous, and the point at which the thorn entered was marked by a sloughy ulcer, which exuded a serous fluid on pressure. Temperature was 100° F.

TREATMENT ADOPTED

I took $\frac{1}{3}$ gr. of morphia tartarte tabloid and dissolved it in a small quantity of sterilised distilled water and along with it I added the contents of one ampule of Hyocine Hydro Bromide $\frac{1}{150}$ gr. and injected this mixture on the upper arm of one hand subcutaneously and simultaneously I gave an intramuscular injection of 20 m of 2% carbolic solution in the other hand. Evidently the object of first injection was to control the fits and the 2nd injection to neutralise the toxin as much as possible. The reason for combining morphine and Hyocine was that one or the other alone did not give the desired effect in controlling fits in similar cases, many a time, previously in my experience. I also freely opened and scraped the site of wound and after cleaning it with antiseptic lotions and Hydrogen

peroxide cauterised the whole portion with strong carbolic acid and bandaged. The following mixture was administered.

℞

Pot. Bromide	℥iss
Chloral Hydras	gr. 40
Tinct. Hyoscyamus	℥ii
Aqua. Chloroform ad.	℥iv

Ft. mixt. ¼ part every 4 hrs.

The next day morning the patient's relatives came to me and told me that she had only two fits since I left the place. I saw the patient on that day also. When I saw her she was fully conscious and complained to me of pain throughout her body and wanted medicines for that. I, after pacifying her by telling her that pain will be stopped at once, wanted to see the condition of the wound. The bandage was opened. The wound was cleaned and again touched with strong Carbolic acid and rebandaged. I noticed, all on a sudden, during the course of dressing she got an attack of fit but not so severe as on the previous day. Again, as on the previous day I gave her an injection of morphin and Hyoscine combined on one arm and Carbolic injection on the other arm and told them to repeat the same mixture. Four more doses as directed on the other day and after asking them to inform me about her progress next day returned from the village.

To my great surprise, next day the patient's brother came to me at about 12 noon and told me that she was all right and my visiting the patient was not necessary but he wanted only medicine. Therefore I gave him 4 more doses of same mixture with less dosage of ingredients. He took the mixture that day but did not turn up afterwards. After a week I met a relative of the patient and ascertained from him that she was completely cured.

I write this because I wish my brother practitioners to treat their tetanus cases on similar lines and to report the result of their experience through the medium of this journal so that it may be of some interest to the readers of "Antiseptic."

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BRONCHIAL ASTHMA

Bronchial asthma comprises about a third of all the cases that attend an outpatient, and we diagnose it mostly on the history of attacks of difficult breathing and wheezing with intervals of freedom between the attacks.

It is characterised by dyspnœa, cough and wheezing, with cough the main feature and with onset late in life, with absence of allergic and heriditary findings.

All through the centuries asthma has been considered more or less incurable and even today there are many who still believe that there is no hope for the asthmatic.

But the knowledge gained in recent years on asthma is so considerable, that hope should replace despair.

To understand clearly the various changes that take place in the bronchii in an asthmatic its anatomy is of particular interest, specially the muscular layer.

We all know that the muscle layer is almost entirely of circular type, and as bronchii diminish in size the muscular layer becomes proportionately larger. Bronchii are entirely under the control of the vegetative nervous system. Contraction of the bronchial muscle is caused by the stimulation of the vagus, while stimulation of the sympathetic opposes the vagus action, and so relaxes the contracted bronchial muscles.

The relief of an asthmatic attack is brought on by adrenalin, due to its stimulation on the sympathetic, which brings about relaxation of the constricted muscle fibres.

The presence of a number of sensitive nerve fibres of the vagus in the epithelial layer accounts for the irritation of the mucosa to foreign materials and aids us in protection. When asthma occurs their sensitiveness accounts for the many attacks. The two main theories regarding the mechanism of the paroxysm of asthma are the theory of Bronchospasm and oedema of the mucosa. Both these are well supported by various experimental data.

Among some of the less well—supported theories may be mentioned that asthma is a result of focal infection from teeth, tensils, sinuses etc. One cannot assert too much on this theory as there is little experimental evidence in support of this, and clinically permanent improvement from removal of these foci of infection rarely occurs. However it should not be forgotten that operations based on this principle are sometimes successful but the good that follows, if any, is temporary in most cases.

Recent researches carried out on the aeteoloos of bronchial asthma show that heredity and allergy play a great deal though heredity has been shown to be all powerful. Now it is believed that bronchial asthma is handed down from one generation to another.

If has been frequently shown, that offsprings of allergic parents often manifest allergy but the form in the children need not be the same. (e. g.,) the child may have asthma and the parents hay fever or vice versa.

The main advance in the study of bronchial asthma is "Allergy" and its recognition has been responsible for much research work. 'Allergen' is a condition of hypersensitiveness or idiosyncrasy to some substances, which usually contain protein material though allergy follows exposure to pollens, or animal dander, furs etc., which contain no protein. Attacks of allergy have often been noticed after taking some drugs like aspirin.

The cause of these allergic attacks on a certain percentage of cases have been attributed to the heriditary factor mainly by a very large majority of research workers on allergy and allergic diseases. Diagnosis of bronchial asthma is easily made on the history of attacks of dyspnœa, wheezing with freedom between attacks etc., but as confirmatory tests may be mentioned the positive skin tests to substances like horse dander, cat hair, feathers, pollen, dust, foods etc., Eosinophilia in blood, Crushmans spirals, Charcot leyden crystals in the sputum.

There is little difficulty in the differential diagnosis.

Cardiac asthma is very common and can be diagnosed on the history of deficient breathing on exertion, usually beginning in the latter years of life and associated with definite signs of cardiac lesions as enlarged heart, hyperpieses, congestion of the lung, enlarged liver, oedema of the lower limbs etc.

Pulmonary tuberculosis sometimes coexists with asthma, but this should present no difficulty as repeated negative sputums in doubtful cases should lead us to asthma, more so when there is a history of allergy in the family.

Syphilis of the respiratory tract and mediastial neoplasms are also sometimes met with. Inspiratory dyspnœa is produced by pressure over the bronchus, larynx or a foreign body in the upper air passages, while the dyspnœa in bronchial asthma is mostly expiratory in type.

Prognosis of bronchial asthma is more favourable now, and we can improve or alleviate the symptoms of most of our cases of genuine bronchial asthma. It has been found by actual experience that the prognosis is better in young patients.

The treatment of asthma is both prophylactic and active.

Where both parents exhibit allergic symptoms one or other form of allergy will develop in about 60% of cases, in their offsprings.

If this fact is borne in mind, there would be far less asthma and allergic diseases. As a first step, then intermarriages among the allergic families should be avoided. Children born of allergic parents should be watched from birth, and the peculiar idiosyncrasy or sensitiveness to foreign substances if any must be watched for and carefully avoided. The diet in such children should be cautiously changed from one to another, as there is a great frequency of sensitiveness to various articles of diet in infancy.

Exposure to animals specially domesticated ones like the cat and dog should be restricted if not avoided.

Lastly at the very onset of allergic symptoms like asthma, urticaria, eczema etc,, the child should be thoroughly examined and skin tests performed.

If these symptoms are not watched and taken care of, the child may probably attain a stage with complications like chronic bronchitis, emphysema, when no treatment will be of any avail, and the child is doomed to life long misery. The active treatment of these conditions may be described under two heads, (*viz.*,) specific and non-specific.

In a few cases it is possible to find out by suitable skin tests on the patient, the sensitiveness to particular protein or other

substances. These substances that show a positive reaction are introduced into the patient with the idea of desensitizing the patient to that substance. Avoidance of substances that are introduced as such forms an essential factor in the treatment. Non-specific treatment consists in the use of various drugs and other methods.

The drug that gives satisfactory results in a given case of asthma is ephedrine, which is usually administered orally, in doses of 1/6 gram to ¾ grain depending upon the condition of the patient and severity of the attack.

In some cases it causes alarming symptoms as, tremour, palpitation, insomnia, weakness, excessive perspiration, nausea and vomiting. In such cases adrenaline hydrochlor (1 in 1,000) solution in doses of 5 to 15 mm answers well. Among other medications, potassium iodide, atropin, Tr. belladonna are good symptomatic drugs in liquefying the secretions and relieving spasms.

In addition to these methods of treatment, ultra violet ray treatment has been tried with benefit. It acts like a general tonic, and may be specially recommended in children and ill-nourished adults.

Medical News and Notes

SURGERY.

Para intestinal inflammatory tumour of amoebic origin. *Sold and Bacigalupo* (*Archivos argentinos de enfermedades del Aparato digestivo de mutricion Buenos* Ayres 1926 T 1 nº 3).

The inflammatory tumours caused by amoeba and other parasites have a paraintestinal localisation and do not interfere with the lumen of the intestine. The peritoneal, perisygmoid, pericolic and periduodenal exudative inflammations are many times caused by intestinal protozoa. The entamoeba histolytica particularly gives rise to appendicular lesions with all characteristics of appendicitis.

Treatment: specific and surgical.

Mastoid complications of otitis due to streptococus mucosus capsulatus Gonzalez Avila (*Revista de especialidades* Argentina no 7. 1929).

Communication to the Soc. of Oto. Rhim. Laryngology from Buenos Aires.

Every case with a febrile temperature. spontaneous or provoked pain in mastoidal region, or even when there is not such pain, the tympanic membrane if pale rose with slight preservance of luminous triangle, paracentesis should be done for investigation of *streptococus mucosus capsulatus* in pus.

If this proof is positive (double coloration with Wittmack thionine) immediate operation should be done, not by antrotomy but by mastoidectomy assuring so good an evacuation of the compact cells, which Escat divides into perifacial, zygomatic, perisinusoid, point cells etc.

Radiography should be taken from both mastoid apophyses, the best position for this being the occipito-posterior position of Bretton & Worma. Six detailed clinical histories illustrating the communication are given.

On the results of perifemoral sympathectomy for the cure of chronic ulcers of inferior extremities. F. Benedetti Valentini (*II Policlinico Sezchirurgica* XXVI 12 15-XII-29).

13 patients with chronic ulcers on inferior extremities treated by perifemoral sympathectomy (from 6 to 15 cm according to the method of Leriche. 7 had plantar perforating ulcer, 6 varicose ulcers resisting every treatment.

Results:

Perforating ulcers—2 persistent cures, 4 recidives, from 3 weeks to 2 years, 1 no result.

Varicose ulcers—4 permanent cures, 1, recidive, I, no result.

On a case of Streptococcic septicemia cured by gonacrine Lereboullet & Gournay. (*Soc. med. des. Hop.* analysed in *Presse Medicale* 28 5-IV-30).

Young man, 25 years old with a septicemia since 6 days. Streptococcus cultivated from blood. Intravenous injections of gonacrine gave a rapid and definite lysis. The method is innocuous and may render valuable service in certain septicemias.

On the circulation of meningiomes. Egas Moniz (*Portugal medico* XII 10 Oct. 1929).

In the classification of cerebral tumours Cushing has given a special place to meningiomes (1922). Such tumours push the cerebral substance but are not infiltrated in it. Excapsulated they are born from aracnoid aberrant cells. Easily operable, they are of special importance for the surgeon.

Their diagnosis, sometimes easy by the common radiograph when they contain calcareous concretions is often very difficult as well as their localisation which can be suspected by the aid of neurological syndroms.

Arterial encephalography renders the most valuable service to such diagnosis. These meningiomes possess a special circulation provenient from the internal carotid artery.

Treatment of angiomes and lymphangiomes by local injections. Fonsecae Castro & Machedo Chaves ((*Portugal medico* XIII 8 August 1929).

Local injections of saturated solution of sodium citrate in the treatment of angiomes and lymphangiomes are not toxic neither necrose producing and give excellent results in these diseases. Dose 1 to 3cc, twice per week.

Arterial Encephalography. Amandio Pinto (*Bull et Mem. de la Soc. Nat. de Chirurgie* VLI. 1. 5-1-30).

The neurological diagnosis of cerebral tumours and their localisation is often imposible, either because no neurological signs are found in order to define the localisation, or because the patients arrive sometimes in a very advanced stage with blindness, &c. rendering such examination useless. Radiography constitutes a good advancement for these diagnosis in some cases meningiomia with vascular or osseous alterations, tumours of Rathke cavity etc).

Dandy has introduced the ventriculography (visibility of cerebral ventricles to X rays by injecting air in cerebral ventricles. Prof. Egas Monis introduced the arterial encephalography.

The author makes in his service the injection of 6 c.c. of sodium iodide a 25 % in either the internal or common carotid. In the former case a temporary ligature is made on the external carotid not to allow the liquid to enter this vessel. The radiography must be instataneous (1/10 of a second).

Generalised peritonitis after treatment of a fibroma by radium. L. Bonnet (*Bull et Mem. de la Soc. des chirurgiens de Paris* XXII-4 21. II. 30.

Intrauterine curietherapy is not free from certain severe complications. After an application of radium for fibroma the author observed in one case a generalised peritonitis. The patient recovered after immediate hysterectomy and Mickulicz drainage. During the operation it was found that the peritonitis was due to suppurated annexial lesions which had been exacerbated by the radium therapy.

MEDICINE

Harmin of Banisterin in the treatment of certain symptoms of parkinsonian syndrom J. J. Spangenberg (*Revista de Especialidades* Buenos Aires No. 7 1929).

Lewin proposed the name *banisterin* to the alkaloid from *Banisteria caapi* a south American plant (1928). Fischer Cardenas (1923) gave the name *telepatin* to the active principle of the same plant. Further studies showed that the different alkaloids named *yagein*, *banisterin* and *harmin* were very similar.

On toxicologic and pharmacological point of view *banisterin* and *harmin* are identical.

Beringer (1928) employed banisterin in the sequels of encephalitis epidemica. Schuster in extrapyramidal syndroms.

The patients feel sometimes malaise, vertigo, generalised pruritus, hot wave, pallor, nausea, some tremblement and rarely vomits. Bradicardy is frequent. The action upon the parkinsonian syndrom is favourable.

The author, owing to the difficulty of obtaining banisterin has used Harmin Merck (alkaloid isolated by Fritche in 1847 from the episperm of seed of *Paganum harmala*), in 2 cases of Parkinson disease, one case of Wilson disease, one post encephalitic parkinsonian synrdom. Dose 0.02 to 0.04 given daily. Very good results. Detailed clinical observations.

Functional relations between spleen and liver G. Montemartini (*II Policlinico, Sez, Chirurgica* XXXVI 2 15. II. 29).

Dogs and rabbits operated with splenectomy show a remarkable diminution of weight.

The AZ metabolism suffers the following modifications: increase in total AZ and urea, diminution of amoniac and amino-acids, increase of azoturic coefficient.

At the same time there is increase on hepatic glycogen and alimentary hyperglycemia.

No modification on bilirubemia.

The author states that normal spleen has a regulative action on liver, and that before making a splenectomy one must carefully study the function of the liver. If this gland is much alterated the patient cannot survive the operation.

For a radical cure of anchylostomiasis A. Ceresoli (*La medicina dellavoro* 6 1929 analys in *Rinnovamento medico. Sezione* VII Giorn, ital. *di ma al attic esotiche tropd igiene coloniale* III 5 31. V. 30).

The author gives per 5 to 8 gr. of chloroform in 30 gr. of castor oil early in the morning, on fasting. A complete cure is obtainable generally with one single dose, rarely with a second dose given some days after.

The chloroform in oil solution passes practically unaltered to the duodenum. Here the lipasis destroys the oil and liberates slowly and gradually the chloroform.

Up to 200 ankylostomes have been expulsed and microscope does not reveal any infection after such treatment.

Transitory anuria due to sodium salicylate in man H. Rossello. (*Revista de Especialidade* Bulnos Ayres No. 6 1929).

Albuminuria and tubular nephritis, associated to an increase of uric acid in urine have already been noted by authors.

Temporary anurias under the same medication constitute a new fact which the author reports to the Society of Pharmacology and Therapeutics in Argentine. The fact is not rare as in 9 cases intensely treated, it has been observed in 3, who have shown concomitantly accidents of nervous salicylism and albuminuria.

Meningococcemia of pseudo malarial type H. Schaeffer (*Presse Medicale* 28. 5-IV-30).

History of the case: The author calls attention to the various clinical forms of meningococcemia, purpuric, typhoid, articular; but the most frequent is certainly the pseudo malarial. The three main symptoms of this type are: fever, cutaneous manifestations under the form of papules or maculo-papules, and pains, such algias being found around the cutaneous elements and the articulations. The duration of such forms varies from 20 to 75 days. Netter had a case lasting for 103 days. Lemierre reports one observation having lasted 11 months.

The hemoculture made in good conditions and repeated when negative in the first analysis, gives generally a pure culture of meningococcus B.

THERAPEUTICS.

Experiments on gold salts associated to arsenic in the treatment of cutaneous tuberculosis Noguer More (*El Siglo Medico* Madrid LXXVII 85. 1 (-v-30)

Cases treated :

Lupus erythematosus cured 9 (two with recidives), ameliorated 3, no action 3, no information 4. The results have been particularly remarkable in forms showing slight keratosis and infiltration and in paratuberculous erythrosis.

Lupus of Wilson : cured 6 (2 with recidives), ameliorated 10, no action 3, no information 5.

Good results specially in forms affecting the orifices, with slight sclerosis, even when the lesions are very extensive.

Tuberculides. 2 erythema induratum of Bazin ameliorated ; 3 fibrous sarcoid, with one wonderful amelioration and 2 with no results ; 2 escrofuloderma with no results.

Posology : Series of injection of neocresol, progressively increasing till 2.5 to 3 gr., weekly injection beginning with 0·05 and following with 0.15 to 0.2 Rest for one month.

If there is no amelioration at the end of first series or at the beginning of the second it is useless to continue the treatment. The injections are intramuscular.

The treatment of scalp ring-worms by thalium. Tome Bona (*El siglo medico Madrid* LXXVII 85 1. III. 30)

The common ringworms of the scalp are tricophytia, microsporia and favus. The depilation by X rays gives wonderful results, but this treatment is not at the disposal of rural practitioners

Thalium acetate is almost specific for tricophytia & microsporia. The results on favus are less encouraging.

The present study is based on 480 cases with 295 cures. Thalium acetate, firstly employed in pommade, is now given per os. *Dose* 7 to 8 milligr. per kilo weight, given at one time. If there is need to repeat the treatment an interval of at least 4 months is necessary before giving the drug. With 9 dose of 9 millgr. per kilo weight, toxic accidents are very frequent and may cause death.

In conclusion thallium acetate constitutes a very useful medication against tineae at the disposal of rural practitioners.

Antitoxic action of sodium salicylate and some other derivates on tetanic toxin H Vincent (compte Rend Soc Biol CIII p. 747).

The author has shown since 1907 the neutralising properties of soaps vis-a-vis of microbic toxins. Some other non-colloid

substances have the faculty of forming with toxins, specially the tetanic toxin, antitoxic complex, viz., the phenyldimethylpyrazolone and certain sodium salts of acids belonging to benzenic series. The hypurate, butyrate, pyurate, mucate etc., of sodium neutralise 10 to 15 mortal doses of tetanic toxin.

Sodium benzoate is stronger. Its saturated solution (0.5 to 1. c. c.) neutralises 100 mortal doses (experiments on guinea pigs). In the group of phenol acids, the salicylic acid in sodium combination inactivates in saturated solution, (1 gr. to 1. c. c.) after a contact of 3 to 4 days 50 to 400 mortal doses even with the addition of 1/20, 1/25, 1/30 of this solution. With a mixture to 1/35, 1/40 of toxin (250 mortal doses), guinea pigs contract a benign tetanus; with 1/50 subacute tetanus sometimes followed by cure. Diodosalicylate of sodium is yet more active: 0.005 gr. inactivates 400 mortal doses after a contact of these substances for 3 days.

Treatment of intestinal parasitoses by benzo-metacresol Schartz, Azam, Vovanovitch (*Presse Medicale* 29. 9 IV 30)

The benzo-meta-cresol or *cresentyl* is innocuous for man when chemically pure. Daily doses for adults 4 to 5 grams. Given during 4 to 5 days. Some cures of cresentyl, with intervals of 8 days, are necessary. Dose for children 2 to 3 gr. per day.

As intestinal desinfectant the daily dosage may be smaller.

Oral immunisation against pneumococcus Victor Ross (*The journal of Experimental medicine* 51.4 1 IV 30)

Feeding with pneumococci grown in milk and killed by heat, with dessicated ones and disrupted mechanically, with Berkefeld filtrate of germs dissolved in Sodium glycocholate confers a high degree of immunity. A simple ingestion of this material equivalent to 1 to 5 c. c. is sufficient to protect a rat against 1000 to 10,000 lethal doses. This protection begins 24 hours after the feeding and becomes evident 48 hours after, the animals resisting well either to subcutaneous or to intraperitoneal injections.

PATHOLOGY

An epizootic amongst wild rodents in Aar and surrounding districts of North of Cape Town.

Mitchell with annexes written by Harvey, Pirie, Rhides, Powell. (*Office intern. d'Hyg. Publique* T XXI 10 October 1929).

Epizootic amongst the wild rodents *Namagua, Parotomys, Rhabdomys, Malacothrix* and *Desmodillus. Lepus capensis* seems also susceptible. Mortality varying according to the species. The

researches carried on by the Bacteriological Department show that the disease is due to a *Pasteurella* different of *B. pestis*, which Pirie names *P. desmodilli*. Rhodes describes also another Pasteureulla, *P. tatericida*. They differ from all Pasteurella hitherto known. Pirie proposes the name *Pasteurella desmodilli*. Rhodes gives the characters of a similar organism and proposes the name *Pasteurella tatericida*.

On the isolation, cultivation and classification of the so called intracellular "symbiont" or "Rickettsia" of Periplaneta americana R. W. Glaser (*The Journal of Exp. Med.* 51, 1 Jan. 1930).

The author claims to have isolated and cultivated the bacteriocytes scattered throughout the fat tissue of this roach and that it is a *Corynebacterium* which he names *C. periplanetae.*

The bacteria like so called intracellular "symbionts" or "rickettsiae" found in some anthropods may be transmitted to man and animals and are presumably the agents of some diseases, *viz.*, typhus exanthematicus, trench fever, &c. Dengue and some anthropod transmitted diseases as Japanese flood fever are also suspected to be associated with Rickettsiae.

As far as concerns the nature of these organisms the opinions vary: some believe that they are bacteria; others that they are special organisms, named Rickettsiae by da Rocha Lima in 1916 and firstly found in the human body louse infected with typhus exanthematicus; and yet others believe that they are only products of cellular metabolism.

Many anthropods apparently harbour more than one species of symbionts and those resemble so closely one another morphologically, that cultures become imperative in order to differentiate them as shown by Noguchi in 1926.

Researches on the culture of lepra bacillus Mario Giordano (*Archivo Italiano de Scienze mediche coloniali* X. I Jan. 1930).

The blood of a leper which was found to be rich in bacilli was sown on the medium of Hohn (Vide. *The culture of the bacillus of human tuberculosis according to the method of Hohn in Boll. dell' ist. Sieroterapico Milanese* June 1928.)

The author claims to have obtained a pure culture of Hansen bacillus which has grown also vigorously in the first subculture. In the subsequent subcultures streptothrix ramified acid-fast forms were found. The material obtained from the nodules of the patients gave rise to the same kind of micro-organisms.

Gleanings from Medical Press

SURGERY.

Phrenicectomy in pulmonary Tuberculosis. M. TAPIA (*Rev. Espan. de Tuberculosis*, April, 1930, p. 25) records 11 cases of phrenicectomy in pulmonary tuberculosis in patients aged from 17 to 52, and comes to the following conclusions: Although in some cases lesions of the base of the lung improve after phrenicectomy, this localization cannot be regarded as an ideal indication for the operation. Resection of the phrenic nerve is specially indicated in cases of lesions of the upper part of the lung with a tendency to retraction. Cases of early infiltration which prove refractory to a rest cure are also suitable for this operation. The presence of plural effusions, especially if they are due to an effusion connected with artificial pneumothorax, interferes with, or at least diminishes the efficacy of phrenicectomy. Phrenicectomy is indicated particularly in those cases in which the patient's social position prevents his undergoing sanatorium treatment. The operation is of no value as a test of functional capacity of the other lung.—*B.M.J.*

Post-operative Thrombosis and Embolism. E. PAYR (*Zentralbl. f. Chir.*, April 19th, 1930, p. 961) states that during the last ten years there has been a very considerable increase in the number of cases of thrombosis, and particularly of severe and fatal pulmonary embolism, amounting in some clinics to 13.5 per cent of all the fatal cases following operation. In Payr's surgical clinic at Leipzig cases of pulmonary embolism formed 5·9 per cent. of the post-operative fatalities in 1929, as compered with rates ranging from 0.5 to 3.5 per cent. in the previous nine years. Operations on the head, neck, upper limbs, and thorax were much less frequently followed by thrombosis than operations below the diaphragm, the relation being 14 to 86 per cent. Childhood is immune, and before the age of 20 thrombosis is very uncommon. The average age for death from embolism is between 52 and 55. Early diagnosis is important, and is established by pain on pressure on the soles of the feet due to commencing stasis in the plantar venous network, and by the appearance of piles after operation. Prophylaxis consists in

exercise of the lower limbs in bed, respiratory gymnastics as soon after the operation as possible, and ligature of the saphenous or femoral veins on the occurrence of slight embolism.—*B. M. J.*

Surgery of the Prostate Gland.—O.S. Lowsley (*Amer. Journ. of Surg.*, March, 1930, p. 526), in a review of 373 cases of operation on the prostate gland, states that the most important factor in the successful treatment of prostatic disease is the institution of suitable drainage until the patient reaches his maximum of renal efficiency. The most satisfactory method of drainage is by means of a suprapubic double tube suction, the preliminary operation to be conducted under local anaesthesia. The type of operation for the second stage can be decided by cystoscopy, or by digital examination, at the preliminary supra-pubic cystotomy. Whenever possible the hypertrophied gland should not be removed by the suprapubic route, but through the perineum, since the shock following the latter method is not so severe. Sacral or parasacral anaesthesia is the most suitable kind for prostatectomy; in 95 per cent. of the cases under review perfect anaesthesia was obtained, while the remaining 5 per cent. only required slight reinforcement. The procedure which proved the most satisfactory was a modification of Young's perineal operation. There were 297 cases of adenomatous hypertrophy of the prostate gland, with a mortality of 5.7 per cent.; 33 cases of carcinoma of the prostate, with a 10 per cent. mortality; 40 cases of prostatic abscess; 2 cases of tuberculosis of the prostate gland; and one of Hodgkin's disease of the prostate. There were no deaths in the last three types of disease.—*B. M. J.*

Solitary Adenoma of the Liver with Twisted Pedicle.—PETIT DUTAILLIS and J. LONGUET (*Bull. et Mem. Soc. Nat de Chir.*, April, 1930, p. 506) report a case of adenoma of the liver with an unusual length of the pedicle, which was twisted. A woman, aged 27, was admitted to hospital with a painful tumour in the right hypochondrium which had been noticeable since a labour three years previously, but had been treated as a floating kidney: after a subsequent pregnancy a sudden violent pain was felt in the epigastrium referred to the back, and accompanied by repeated and profuse vomiting. These attacks had occurred at frequent intervals for about a year, and during one which was extremely severe the patient was sent to hospital. Urological examination showed that the diagnosis of floating kidney was incorrect, and operation was decided upon. Laparotomy disclosed a round dark-coloured tumour about the size of a cocoanut; this was joined to the liver by a pedicle as thick as a thumb and about 3 cm. long, which was

twisted one and a half times. The tumour was removed, there being no sign of cirrhosis of the liver, which was normal in every respect. The wound was closed without drainage, and the patient made a good recovery. The authors think it may be assumed that the torsion occurred during the involution of the uterus after pregnancy; a histological examination of the tumour showed that it was benign in character.

Partial Rib Removal with Closed Drainage in the Treatment of Acute Empyema in Infancy and Childhood. Douglas, ... *Ann. Surg.* 91 : 659, 1930.

The author reports a series of 109 cases of empyema, with fo... deaths. Forty-eight cases occurred in children. Of this 48 som... developed chronic empyema. Pneumonia was the most comm... etiological factor. Other cases followed measles, whooping cough and influenza.

Treatment was instituted following repeated aspiration, wh... the fluid had become so thick that it could not easily be remov... through the needle. Aspirations were done under local anaesthe... At operation, from 3 to 8 cm. of rib were removed sub-periosteal... as far forward toward the anterior axillary line and as low as ... aspirations showed pus. The Pleura was then opened ... the cavity explored. All clumps of fibrin were removed. ... wound was closed in layers about a rubber tube 2 to 2 cm. ... diameter, which was attached to a piece of rubber dam. Suct... drainage was then established. In 7 or 9 days the tube ... shortened. It was then shortened every 3 days until no fluid ... evident in the chest.—*C. M. A. J.*

Ischiorectal Prostatectomy.—Meherin, J. M., *Arch. Surg.* ... 3, March 1930.

According to Meherin (of Halle, Germany), the division ... opinion among surgeons as to the choice of method in prostat... tomy indicates that neither the suprapubic nor the perin... method with its various modifications fulfils all requirem... The choice of one method rather than the other, because of great... familiarity with the procedure and the constant attempts to v... and improve the technique, are proof of a somewhat general ... satisfaction. Difficulties in hæmostasis, and in the after care ... the wound, in the supra-pubic operation, and the technical di... culty of gaining adequate exposure by the perineal method, ... definite faults of these operations.—*C. M. A. J.*

The technique of ischiorectal prostatectomy has been improved in many small details in the past ten years. The patient should be in the best pre-operative condition. Preliminary drainage is made with either the indwelling catheter or the suprapubic fistula as indicated. The performance of a preliminary vasotomy is essential. Post-operative epididymitis, which is a frequent complication of the other methods of prostatectomy, was not seen in the present series of 148 cases in which ischiorectal prostatectomy was performed, all with preliminary vasotomy. Full details of the operative technique will be found in the paper.

The mortality rate in this series of 148 cases was 4.07 per cent. and included the work of eight surgeons.

In conclusion, Meherin sums up the following advantages of the Voelcker method of ischiorectal prostatectomy. The operation is done entirely under the guidance of the eye. Exact hæmostasis by means of ligature, suture and packing is possible. Because of exact visibility the possibility of leaving small pieces of adenoma behind is unlikely. Dependent drainage from the base of the wound is possible. Death from operative shock has not been encountered. Permanent fistulas or incontinence have not occurred. Post-operative epididymitis can be almost entirely controlled by the performance of vasotomy before treatment with the indwelling catheter is inaugurated.

Chronic Cystic Mastitis.—Rodman, J. S., *Arch. Surg.* 20 : 3, March 1930.

Contrary to his expressed opinion of ten years ago, Rodman does not now believe that chronic cystic mastitic is a precancerous lesion. This affection sometimes does lead to carcinoma, although not so frequently as formerly considered, but it is impossible to state with any degree of certainty which cases will do so. If each case of breast irregularity with respect to age, menstrual and sexual history, together with what is now known of the physiological cycle of breast tissue behaviour, is carefully considered, one can usually decide on the best procedure for that given case.

The most important of these factors in women of child-bearing age is the menstrual function. The amount of involution and evolution which the breast undergoes during its active life is, great, no other organ being given to more epithelial unrest. These epithelial and fibrous tissue aggressions and regressions occur only in women, and at times give rise to great difficulty, in deciding between the normal and the abnormal. When this normal involuntary cycle in the breast is interfered with disease begins, and adenoma, fibroadenoma, papillary cystadenoma, chronic cystic mastitis, and even carcinoma may develop. Too much conserva-

tism in dealing with breast tumours is a dangerous doctrine unless one has had a reasonably large experience in the matter because valuable time might be lost in doing the radical operation to forestall the development of or to attempt to cure a case of early cancer. The surgeon must co-operate with a competent pathologist. There is a sexual cycle in the mammary gland similar to that in the uterine endometrium, where the physiological changes are correlated with the development and the regression of the corpus luteum. Somewhere between the menstrual cycle the breast is in its resting stage, probably, from the fifth to the fifteenth day after the last menses. At this time the fibrous stroma predominates, the epithelial elements are only ducts and occasional acini. Rodman describes the changes which occur in the pre-menstrual phase in the two layers of lining cells of the mammary ducts and in the surrounding fibrous tissues when the epithelium degenerates and is shed into the lumen of the ducts. The changes during pregnancy are also described, in which numerous new acini are formed and the periductal fibrous tissue is pushed aside and is no longer distinguishable from the perilobular connective tissue. Epithelial activity is at its height. After lactation is over involution occurs, hyperplasia ceases, secretion is absorbed, and the empty acini collapse. Most of the acini disappear at this time, but the gland never returns quite to the normal virgin state; lactation hypertrophy both of the fibrous and the epithelial elements remains to some extent. When proper growth and involution are interfered with, either locally or generally, certain aberrations may occur, involving either epithelium or fibrous tissues or both. The author believes that chronic local hyperplasia in the breast results in an adenoma or an adenofibroma if the epithelial elements are affected as well as the fibrous tissue, fibroadenoma if the fibrous tissue predominates. If the epithelial cells come to a stage of secretion and the normal absorption is for some reason interfered with, cysts of the acinar type will occur. If the fibrous tissue was chiefly affected, the ducts would try to proliferate as they do normally in the premenstrual phase, but they would be pressed on and pulled out by the fibrous tissue and the result is the ordinary intracanalicular type of fibroadenoma. Carried further the ducts become invaginated and there results a series of projections within the lumen of the cavity covered by epithelium. If the ducts are distended by unabsorbed secretion the result is a papilloma.

Many of the benign tumours of the breast are without capsules or are semi-encapsulated. In some of the localized aberrant disturbances the proliferation of the fibrous and epithelial elements has been sufficiently great to push the surrounding fibrous tissue aside to form a capsule. If there is no attempt at localization and the same changes are widespread then chronic cystic mastitis, or the abnormal involution of Warren, is the lesion present. In the majority of cases involution is at fault. Carcinoma may develop in a breast showing abnormal involution. The current belief is that it does not happen so frequently as was formerly thought. Carcinoma seems to arise in larger ducts, not in lobules. While abnormal involution may prepare the ground, yet in the great majority of cases nothing further than the aberrant physiological changes occur.—*C.M.A.J.*

Gross Haemorrhage in Gastric and Duodenal Ulcer.—John J. Gilbride asserts that bleeding in variable amounts occurs in more than 95 per cent of all cases of gastric and duodenal ulcer. Occult blood may be found in the gastric contents, in the faeces or in both. The same is true in gross bleeding. Eleven of the twenty-one proved cases of ulcer included in this analysis of twenty-seven cases occurred in a group of 217 patients with proved ulcer, nearly all of whom were ambulant. This is 5.07 per cent, or a ratio of 1 to 19.7. The histories of these patients show clearly that recurrences of symptoms are frequent: that in many instances the patients recover from the attacks without any special medical attention, and that attacks of ulcer symptoms may or may not recur. This course is more often true in cases of duodenal ulcer than it is in cases of gastric ulcer. Duodenal ulcer responds better to treatment than does gastric ulcer. Obstruction is caused more frequently by duodenal ulcer than by gastic ulcer. According to Gilbride's observations in this group of cases, the blood is vomited in gastric ulcer and the presence of large amounts of blood in the stools is infrequent. In duodenal ulcer the hæmorrhage shows in the stools and it is only rarely that patients vomit blood. Blood in the vomitus is always noted by the patient, but the presence of blood, even in large amounts, in the fæces may be entirely overlooked. Hæmorrhage occurs into the stomach in gastric and duodenal ulcer without the patients vomiting blood. Some of these patients with gastric ulcer had only a single large hæmorrhage; other patients had several hæmorrhages of moderate size. A few patients had recurrent large hæmorrhages. In those instances the hæmorrhages recurred after intervals of from six months to a year. Gross bleeding into the intestine from duodenal ulcer may occur as a single large hæmorrhage, but what occurs more frequently is a series of hæmorrhages extending over a period of several days. It is difficult even to approximate the quantity of

blood lost in hæmorrhage into the intestine. The small... morrhages of from 150 to 300 c. c. or even 500 c. c. are mor... seen. These hæmorrhages may recur. A clinical diagnosis ... was made in only six cases; rœntgen examination was ... ten; roentgen examination and operation in seven, and ope... alone in four. The total number of proved cases of ule... twenty-one. There were ten cases of gastric ulcer and sev... cases of duodenal ulcer. Hæmatemesis was present in ... cases of gastric ulcer; melæna was present in two. Hæmat... and melæna were present in two cases. Of the seventeen c... duodenal ulcer, melæna was present in all seventeen. Ha... mesis was present in one. Reported blood counts and the ... of the blood pressure at regular stated intervals, every ... necessary, or every second or third day if conditions are ... sible, furnish valuable data as to the course of the disea... *Am. M. Ass.* 34; 1746, May 31, 1930.

MEDICINE

The Treatment of Hypotension.—Dr. Chamberlain... *Lancet*, *April* 27, 1929) considers that hypotension exists whe... systolic blood-pressure in an adult falls below 110 mm. of mer... and points out that this condition may arise from a varie... causes.

In acute hypotension associated with anaesthesia, espec... spinal anaesthesia, the intravenous injection of adrenalin is ... cated in urgent cases; and when the emergency is not too ... intramuscular injection of pituitrin is advised as being of ... help.

In cardiac diseases in which blood-pressure suddenly f... heart failure becomes imminent. In addition to rest and warm... pituitrin in doses of O.5 c. c. twice daily, given intramuscul... may be of service in restoring normal pressure.

In Stokes-Adams disease accompanied by hypotension ... bradycardia, 5 to 10 drops of adrenalin given subcutaneously ... be great of service.

In acute infections where the condition resembles shock (... is, sudden pallor, cyanosis or collapse), pituitrin may prov... considerable help.

Some types of pituitary insufficiency are associated with ... blood-pressure, and the rational treatment of these cases is ... administration of O.5 c. c. pituitrin intramuscularly twice daily. *American Medicine.*

Wie varhalt sich der praktische Arzt bei Lungen-und Magen blutungen? (How should the general practitioner deal with hæmorrhage from the lung and stomach?) Schlager, P. R., *Zeitschr. f. arzt Fortbild* 26: No. 18, 1929.

According to the author hæmorrhages from the lung or stomach are of a capillary origin, arterial bleeding being rare. Arterial hæmorrhage is severe, lasts for hours, and demands special measure for its control. Chief among them are rest in bed, ice-bags, and abstention from speaking. Besides these treatment should be instituted in three particular directions: (1) increasing the coagulability of the blood; (2) increasing the contraction of the vessels; and (3) the use of sedatives.

Gelatine is slow in its action, and, accordingly, the author relies on the use of calcium to increase the coagulability of the blood. In severe cases injections of serum may be employed, in cases of necessity, diphtheria antitoxin.

To obtain the desired angiospastic effect, digitalis is the first drug to be tried; adrenalin should not be used.

The sedative drugs recommended are papaverin and atropin. In all hæmorrhages of uncertain origin powerful sedatives must be employed, and the narcotic drugs as far as possible, such as codein. Bromides are often efficacious. In the case of pulmonary hæmorrhage lead acetate can be used to advantage. Binding the lower extremities is of doubtful value. In severe cases the induction of pneumothorax may be life saving.

In the case of bleeding from the stomach hot enemas are useful and lavage with ice-cold water. Abstention from food and drink should be absolute for from four to six hours. J. C. M. A.

Ephedrine.—Ephedrine is a drug that in recent years has established and increased its importance very rapidly, and to day is finding extensive and varied clinical applications. The history of the introduction of ephedrine into therapeutics is curious in that the drug was known for a long time before it received serious attention, but once it attracted notice its virtues were recognized very rapidly. The plant ephedra had been used in Chinese medicine for no fewer than 5,000 years, and the alkaloid was isolated as long ago as 1885. Some of the pharmacological actions of ephedrine were recognized at that date, and as a mydriatic it found a place in Merck's catalogue in 1896. The more important actions of ephedrine were not recognized until 1924, when Chen and Schmidt made a fresh analysis of its actions and showed that these resembled those of adrenaline, but that ephedrine possessed two important advantages—it was active when given by mouth, and

required alkali. Vegetables and fruits yield an alkaline ash the laboratory, and a similar behaviour has been demonstrated many instances in the body. Indeed, it has been shown oranges, apples, pineapples and tomatoes, fruits with juice of or less pronounced acidity, yield alkali in the course of metabo sufficient to change the reaction of the urine. That this type action is not characteristic of all fruit juices, however, has re tly been shown again by Pickens and Hetler, who exami among other things, the acidity of the urine in human subj who had drunk large quantities of grape juice. When, under c fully controlled experimental conditions, as much as a quar grape juice daily was ingested, neither the titratable acidity the hydrogenion concentraction of the urine was signific altered. This is not the only example of the failure to dec the acidity of the urine by a fruit with an alkaline ash. Bla wick has shown that the ingestion of prunes, plums and cranb results in an actual increase of acidity of the urine, owing, pr to the content of benzoic or other similar acids in these pa fruits. One puzzling aspect of the behavior of the unfer sweetened grape juice used in these studies is the fact that are known to decrease the acidity of the urine. In vie growing tendency to adopt dietotherapeutic alkalization b of fruits and fruit juices, it is well to point out that not a are effective in this regard.—*J. Am. M. Ass.*, April 5, 19 *Journal of the Canadian Medical Association.*

Adrenalin Probe Test in Neurosyphilis.—Arnsson, Ga Stein (*New York State Journal of Medicine, 1929*) have fo adrenalin probe test a satisfactory and valuable means f orientation before performing spinal puncture. In 100 with neurosyphilis or paresis 99 showed the phenom mucographia albia. In 105 patients with dementia pa showed this phenomenon limited to one side of the nose believe that the sympathetic system must be the seat of pathology and think it would be valuable to follow up the adrenalin test in cases of latent syphilis with negative The prognosis of syphilis as to the later involvement of the nervous system is of such importance as to warrant every method which may help to solve this problem, and it that in the adrenalin probe test of Muck one has a adjunct in the diagnoses of pathological conditions in the portion of the central nervous system.

Dr. Muck, of Essen, Germany, gives the technic as foll the anterior portion of the inferior turbinate of a norm

is made ischemic by means of a spray of an adrenalin solution of 1 to 1,000 and a line is drawn upon it parallel with the floor of the nose with a probe, under moderate pressure three or four times, in the same manner as the well-known dermographic test on the skin, the ischemic mucous membrane immediately or shortly after the probing turns hyperemic. This hyperemia, after one or two minutes, recedes and remains limited to the probed line only, being markedly visible on the adrenalin ischemic background. In from 2 to 15 minutes the phenomenon disappears and the normal condition of the mucous membrane is restored."

A test as simple as this should be of inestimable value in general practice particularly in such cases where the patient either refuses spinal puncture or where for various reasons this may be impracticable.—*American Medicine.*

Correspondence.

To

THE EDITOR THE "ANTISEPTIC" *Madras.*

Sir,

REFERENCE TO "THE USE AND ABUSE OF FORCEPS."

Dr. A. L. Mudaliar, in his article says—"There is a necessity for the evolvement of a forceps better suited perhaps for this type of pelvis than the one used in the continental countries." I want to bring to the notice of your readers the forceps devised by Dr. Kedarnath Das (who was the Calcutta University delegate to the Simla Medical Conference) and made by Down Bros. After a careful study of thousands of Indian pelvis as Registrar of the Eden Hospital, Calcutta, he has given the average pelvic measurements of the Indian woman, in his text book of midwifery and has devised his forceps to suit these conditions. With characterestic modesty, always associated with vast learning, he does not advertise his own forceps even in his lectures to his students, and much less to the profession abroad. I think his forceps deserves more trial and publicity as it is primarily intended to suit the type of the Indian pelvis—and may also be advantageously supplied to Government hospitals.

The junior practitioners who practise in the out-of-the-way places, must thank the author and the editor for the above article. It is written with such understanding sympathy of the

country doctor, who is to be the general practitioner, specialist consultant all in one and very often has to decide on any t ment to be carried on on the spot at the hour. I request you to us some more practical articles of everyday use from I doctors of wide experience and learning—I don't mean the n ality, but doctors with a full knowledge and sympathetic u standing of the Indian conditions—for the benefit of the yo generation who are out of touch with big hospitals,—of the st of those appearing in the Lancet.

Koppa
Kadur.

Faithfully Yours,
B. NARAYANA RAO,
B.Sc., M.B., (Cal.)

Rural Medical Relief

(An appeal to all the Rural Medical Practitioners of M Presidency)

Dear Doctor,

I hope that by this time you are aware of the fact, that is an association of the Rural Medical Practitioners of this P dency and you might be in receipt of the proceedings of I II annual conferences. If you are not aware of the associ even four years after its existence, I greatly regret that it is time to know of it, and hasten to assure you that you can the copies of those proceedings from the Secretary of the Prov al Rural Medical Practitioners Association, Madras. (Dr. S. R subbu L. M. S. Viragavur, Salem Dt.)

This Association has been functioning for over four y during which period a lot of silent work has been done. instance. the enhancement of a subsidy of Rs. 100 a year w we (L. M. Ps.) are enjoying now is the result of the hard la of the united efforts of the Association.

It is quite plain that the Association has acquired momentum, and our united and sustained trials are needed stimulate it further. Everything depends upon our own exert Self-help is the best help and you should never be under the w impression that your friends are doing everything for you that the Association can carry on without you. You should fee your duty to give your sincere hand for the Association and str then it with your moral and material support. If all the Ru Medical Practitioners enlist themselves as members of the A ciation (400 R. M. P's. of the Presidency) then only will Association grow in strength and be able to discharge its dut to the entire satisfaction of every member.

Our Association is fortunate in having a very energetic Secretary in the person of Dr. S. Ramasubbu L. M. S., Viragavur, Salem Dt. who is sacrificing much of his professional work, time and energy for the common cause and wishes every one of us to enter heart and soul in the matter. An annual subscription of Rs. 2 for the Association is not very much, in consideration of the benefits we receive in return. If every one of us thinks it is difficult or unnecessary to send the subscription, it is a hard task for the Secretary to run the Association with a limited membership.

As it is less possible either for the meeting of all the R. M. P's. of the Presidency at one place or for the cummunication of their views to each other in detail through letters the necessity of the formation of the District Associations has arisen. Several District Associations have already been started and if one such has not been yet formed in your district I urge you to start your District Association and every Rural Medical practitioner must become a member of both the District and Provincial Associations the former being only an auxiliary to the latter. All the Rural Practitioners should attend every annual conference of their District Association to discuss their grievances in full, and send the resolutions passed to the Provincial Association for final discussion.

I should impress on the point that every one of us should take a correct view of our position, act to the best of our advantage and contribute our mite for the common good.

Bellamkonda,
Guntur Dt.

C. V. SUBBA RAO, L.M.S.,
(Hyd.)
Secretary, Rural Medical Practioners Association, Guntur Dt.

Book Reviews

The Medical Annual 1930 — A year's book of treatment practitioners' index. Edited by Carey F. Coombs and A. R... Short. 652 pages plus 167. Profusely illustrated and with 61 pl... plain and coloured. Price 20/- plus postage (Bristol: John Wr... & sons Ltd.)

This year's Medical Annual is remarkable for several sp... articles. On the medical side Dr. Campbell of Toronto deals w... all its aspects — the pathology of diabetes, the historical ... clinical aspects of insulin theory, diabetes in children ... pregnancy, diabetic surgery and diabetic remedies. The ... bladder also receives a considerable amount of attention. ... diseases of the gall bladder and their surgery and cholecystogra... are thoroughly discussed. A paper discussing new views ... nephritis furnishes many hints on treatment. Anaemias, ... phalitis, asthma and psittacosis are among the many ... interesting papers.

The articles on 'Radiotherapy,' by Thurston Holland ... that on 'Phototherapy' by Sir R. S. Woods are two other ... worthy articles. The article on 'cancer and its modern treatme... is very exhaustive. In it Dr. Cade discusses the position of radi... in relation to the treatment of cancer, and also describes ... radium "bomb" for distance therapy as used in the Westmin... Hospital. Lead selenide, now issued as "D 4 S" by the British D... House and used in the treatment of cancer is also described.

The article on anaesthesia written by Dr. Blomfield is al... very instructive and deals fully with the use of prelimin... analgesics before the administration of the anaesthetics, w... avertin narcosis, intravenous anaesthesia, post operative acido... and much new work.

On the surgical side, perhaps the most interesting article ... that on the surgery of the blood vessels by Professors Leriche a... Fontaine of Strassburg who discuss many conditions which m... be relieved by periarterial sympathectomy. Among other imp... tant articles may be mentioned 'Burns' by Sir W. I. ... C. Wheeler who describes the new treatment by the tannic a... spray, 'Skin grafting' by the same author, 'Radium treatm... of rectal cancer' by Lockhart Mummery, on 'Fracture by E. ... Hey Groves' 'Surgical tuberculosis by Fraser and 'Syphilis' by Col. Harrison.

The sections on Tropical disease have been ably written by Sir Leonard Rogers who has dealt with such important subjects as amoebiasis, cholera, ankylostomiasis, Leprosy, beri-beri, dysentery, Kala Azar, Plague, sprue and trypanasomiasis.

This year's Medical Annual is as useful as its predecessors. Profusely illustrated, authoritatively written and well got up, it reflects great credit both on the editors and the publishers. It is essentially useful to the general practitioner to keep him abreast of new developments in medicine, surgery or the specialised subjects.—*U. K. R.*

Rheumatism, a study of its nature and cure.—By Charles E. Sundell M.D., (London) M.R.C.P. (London) 1929 Pp. 88 Price 4/6 net. Southern Libraries Ltd., 255 Bromby Road, London. S. E.

The author has written this hand-book to call attention to certain findings in rheumatic conditions which are so constant as to constitute clinical tests by which the rheumatic state may be detected, to offer an explanation of these phenomena, and to describe methods of treatment based upon them. The author states that parental and grand parental rheumatism is a very common feature in the family history of a rheumatic patient, and attributes the cause to some failure or perversion of the normal vital action and reaction of the cells and fluids of the body, rather than to some implanted infection which has the power of lying dormant for long periods interrupted by bouts of harmful activityl Subnormal temperature, faulty secretion of sweat and abnormal acidity of the sweat under appropriate stimulus are stated to be constant findings in a rheumatic individual and are considered to be regarded as important. The part taken by lactic acid in the body towards production of rheumatism is clearly explained and on this basis, the author stresses the fact that oxidation of excessive lactic acid in the body, and promoting the action of the skin, form the essentials of successful treatment of rheumatic patients.

Chapter III is devoted to a consideration of the regional diagnosis of rheumatic disorders. Here the different regions of the body are considered in a series, and each area is subdivided and discussed according to whether pain or deformity presents the more striking feature. The whole chapter is of high practical value, and will be found very useful, being based mostly on the author's clinical experience. Treatment of rheumatism is described in the following chapter; the author reiterates the value of increased oxidation, and elimination of excess of acid as the sheet anchor in

the treatment of this disease. Hot-packs, Blanket baths, and v couch and cabinets are recommended as the suitable meth increasing the rate of oxidation through stimulation of feve at the same time promoting sweating. Each of these three m is clearly described.

Palliative and auxiliary methods of treatment form subject of the Vth chapter.

Injection of 1 c.c. of 5 % solution of quinine and urea h chloride, is recommended as one of the reliable means of relief from localised pain in a muscle.

Role of the endocrine glands is discussed and the u thyroid extract with benefit in some selected cases is mentioned.

Chapter VI gives some practical suggestion towards preven of rheumatism.

In the last chapter a few of the author's cases are given favour of his method of treatment.

Well and clearly written this little book should be read by interested in the treatment of rheumatism.—*V.C.S.*

A Diabetic manual.—By Elliot P. Joslin, M.D., 4th Edn 1929 Pp. 248 with illustrations. Philadelphia: Lea & Febiger. Price $2.00 Nett.

The author has specially written this manual for the use the doctors and patients. Principles of treatment of diab mellitus are clearly set forth in easy style so as to be underst by any educated patient.

The causes of the disease, its dangers, prevention and t ment have all been fully explained.

The usefulness and necessity of exercise for a diabetic pa is stressed. The chapter on diets of the diabetic individuals written and contains many useful information and hints.

The value of insulin in the treatment of diabetes mellitu the mode of administration are lucidly written.

The sections on the care of the feet in an elderly patien the treatment of coma are good.

The inclusion of many illustrations enhances the usefuln the book specially to the average educated patients. tables are given which will be found useful by both the patient doctors. It is an admirable guide for the diabetic pa and we recommend it to all our readers and those interes in the treatment of diabetes mellitus:—*V. C. S.*

A Practical treatise on disorders of the sexual function in the male and female.—By Mak. Huhner, 3rd edition, 1929 p. p. 342. Price $ 3 Philadelphia: F. A. Davis & Co.

This book gives a very good and complete classification of the sexual disorders in men and women.

The author has brought forth the truth that most of the physicians consider the sexual complaint as nothing, and emphasises the fact that if such complaints are given a proper hearing, the cause of many of these complaints may be made out, and effective treatment instituted. While such a procedure considerably reduces the number of patients that fall into the hands of quacks, it helps to cure many who have been labelled incurable.

Much helpful suggestions and advice are given in each chapter and particularly the chapter on masturbation is well written.

The differences in the nervous mechanism between the coitus, impotence and pollutions are clear and well within easy grasp of the reader. It is a book that may be recommended to the general practitioner as highly useful, while those doing genitourinary work will find it a valuable addition to their book shelves :—V.C.S.

Human Helminthology.—*By Earnest* Carroll Faust, Ph. D., 1929 p.p. xii+616, illustrated with 297 engravings. Philadelphia: Lea and Febiger. Price $ 8·00 net.

In this book the author presents a comprehensive text embodying all the important phases in the recent developments of human helminthology. The writer being an investigator in the field of medical helminthology for over twenty years, and a teacher of the subject to physicians and zoologists, has dealt with the theoretical and practical problems involved, in such a manner as to make the book useful to clinician, the sanitarian, and the medical zoologist alike.

The zoological portion of the text is very good and is exhaustively written. The inclusion of minute zoological classification of the various parasites, we are afraid, may not be of much use to the physician who is not a specialist in zoology.

Section I of the book covers the essentials of the subject wh sections II and III describe methodically the flat worms and the round worms. The description of each worm with its life history is given, followed by paragraphs on pathology, clinical symtoms diagnosis, treatment and prophylaxis.

Section IV will be found very useful as it presents the laboratory side of the subject. Short description of some of the recognised methods of examining and preserving the helminths and their eggs

are given, which will be found highly valuable in identifying a diagnosing them. The book abounds in apt, well chosen illustr tions that enhance its value and usefulness. Another noteworth feature of the book is the inclusion of references at the end each chapter.

The volume should be of interest and value to all who a concerned in the study of Helminthology. *V.C.S.*

The Golden Jubilee of the Indian Medical Record.—Th Golden Jubilee number of the *Indian Medical Record* published i February 1930 furnishes interesting reading. It contain an account of the history of our contemporary during the last fift years from the days of its first editor and founder Dr. Wallace t those of its present editor Dr. Santosh Kumar Mukherjee. In thes pages one learns the great interest exhibited by the Journal i campaigns against Tuberculosis, Kala-azar, Leprosy, venereal diseases and epidemic dropsy. We also learn how the India Medical Record has, since its inception, always encouraged th study of indigenous drugs and has pleaded for reform in medica education and post-gruduate study in India. This isuse als contains a number of interesting articles on various subjects The whole issue is well got up. We offer our congratulations t Dr. Santosh Kumar Mukerjeee on the completion of fifty years o service done by his Journal to the country and the medica profession and also on the general excellence of this particula issue.

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NOTICE.

THE INDIAN SCIENCE CONGRESS, 1931.

The Eighteenth Annual Meeting of the Indian Science Congress will be held at Nagpur from the 2nd to the 8th January 1931. Dr. U. N. Brahmachari, M.A., M.D., PH. D., F.A.S.B., has been appointed President of the Section of Medical and Veterinary Research.

In view of the fact that a very large number of papers have been received in past years making it impossible to read all of them in the time available, and necessitating the curtailment of discussion on others, the Sectional Committees have been advised to make a careful selection of papers accepted. Authors are requested to take note of the following points:—

(i) Papers on Medical and Veterinary Research *must* be received by the Sectional President, Dr. U. N. Brahmachari, Asiatic Society of Bengal, 1, Park Street, Calcutta, not later than the 15th October, 1930 which is the last date for accepting papers according to the rules.

(ii) Only original papers, that is to say, papers which have not already been read or published in the same or similar form, will be accepted.

(iii) Not more than two papers will be accepted from any e contributor.

(iv) Papers must not take more than 20 minutes to be read. It kes 3 minutes to read a page of foolscap intelligibly, apart from agrams, slides, etc. Papers should not, therefore, exceed 7 pages typed foolscap.

(v) Papers *must* be accompanied by *3 typed copies* of an bstract of the paper. This abstract must not exceed 200 words, and should not contain any formulae or diagrams. *Papers not accompanied by such abstracts will not be accepted.* It is not fair to members of the Congress not to have due notice from the programme of what a paper is about.

(vi) All diagrams, tables, pictures, etc., should be reduced to ern slides, or enlarged to posters corresponding in type to 6/18 len.

(vii) Authors should not contribute accounts of their papers the local lay press. It is hoped that it will be possible to rrange for a daily precis of the proceedings in the Medical and Veterinary Section to be sent to the press officially by the President of the Section.

(viii) Workers in Bengal and neighbouring province are requested to send their papers *before the 21st September 1930*, when the Durga Puja Holidays will begin this year. The attention of workers is drawn to the resolution of the Executive Committee that abstracts of papers submitted after the last date *i.e*, 15th October, 1930 *shall on no account be printed in the advance copy of abstracts.*

(ix) Papers will not be accepted from individuals who have not paid their subscription for membership. Forms of application for membership can be obtained from the General Secretary, Asiatic Society of Bengal, 1, Park Street, Calcutta.

Will our readers kindly take this notification as the second official intimation with regard to the 1931 Congress? We trust, further, that the members of the medical and veterinary professions in Nagpur will co-operate to make the 1931 Congress a successful one.

There are three classes of members of Indian Science Congress; viz.:—

(i) Full members; annual subscription, Rs. 10.

(ii) Associate members; annual subscription, Rs. 5.

(iii) Student members (who must be certified by the Principal of their college to be such), Rs. 2.

Only full members have the right to read papers. Associate and student members may submit papers through a full member. Subscriptions should be paid to the Hony. Treasurer, Indian Science Congress, c/o the Asiatic Society of Bengal, 1, Park Street, Calcutta.

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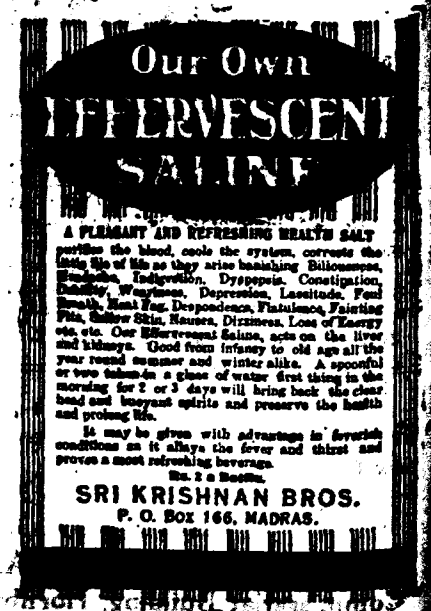

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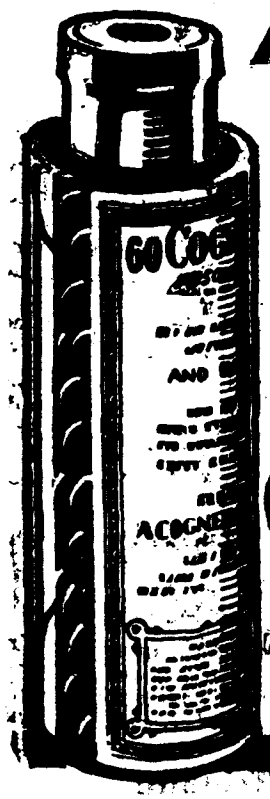

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Age Profession	Illness	Duration of oure	Weight of Body		Amount Hæmoglobin		No. of red Corpuscles.		Pressure of the Blood	
			on entering	on leaving	on entering	on leaving	on entering	on leaving	on entering	on leaving.
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H E. 21 years, Servant girl	Anæmia Perimetritis	5 „	53	62½	40%	40%	180000	3280000	——	——
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OCT. 1930.

The Antiseptic

A Monthly Medical Journal

EDITED BY
Dr. U RAMA RAU & U. KRISHNA RAU, M.B., B.S.

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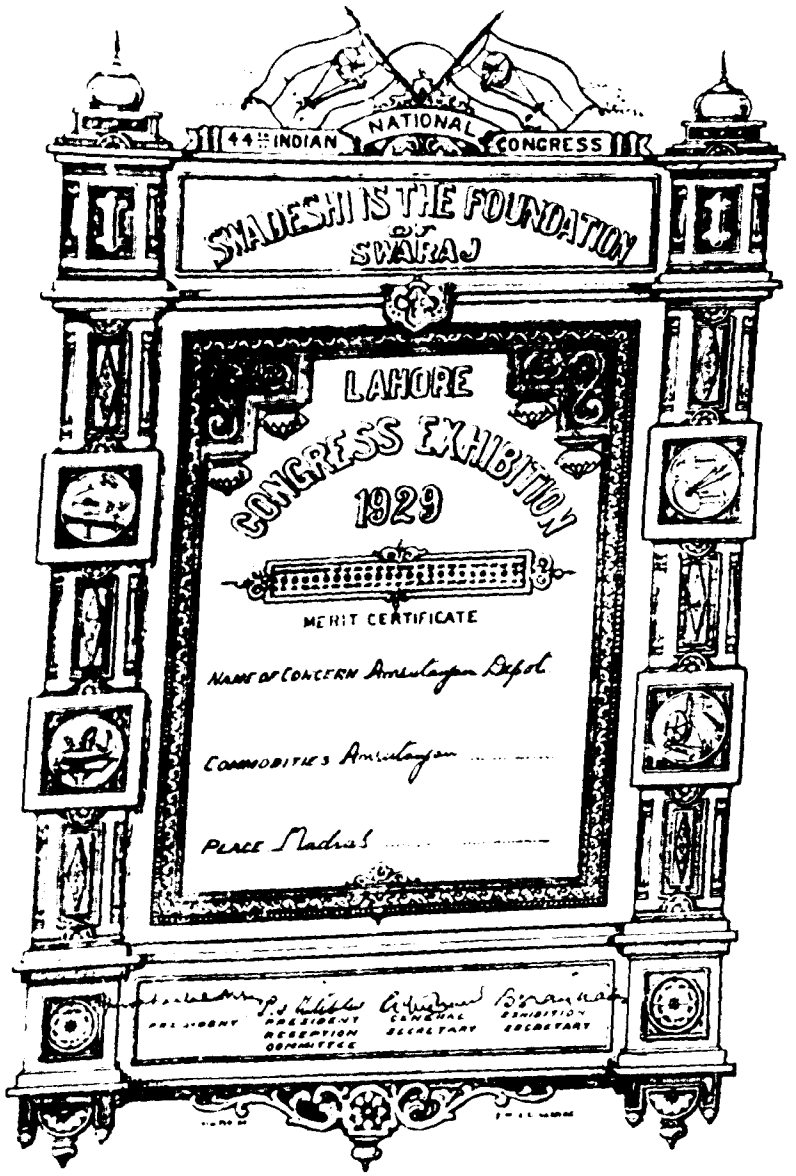

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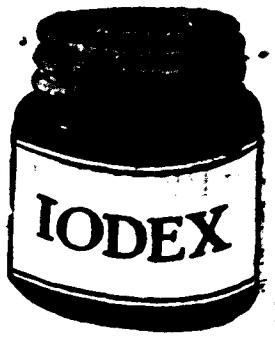

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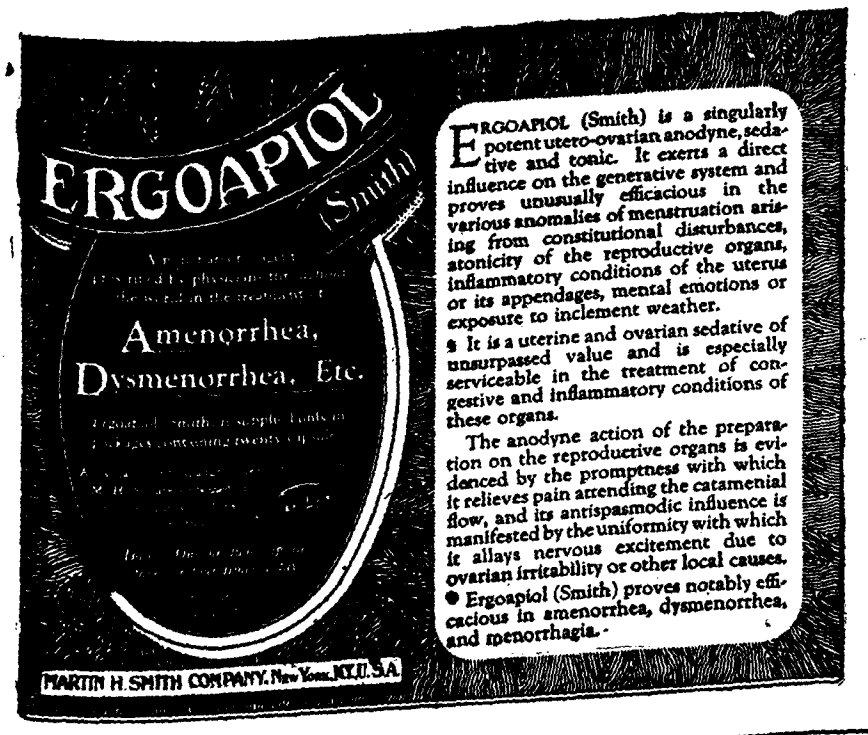

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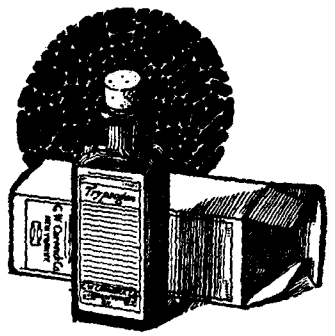

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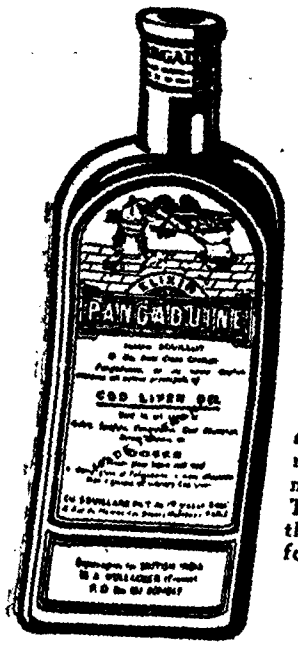

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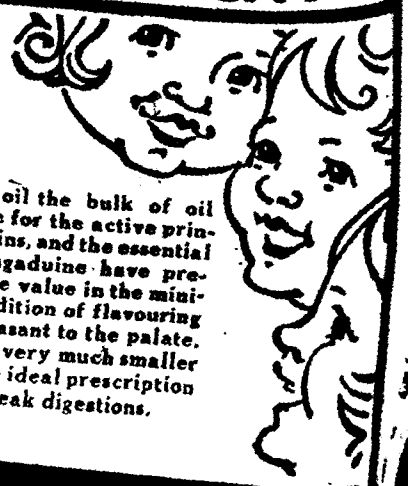

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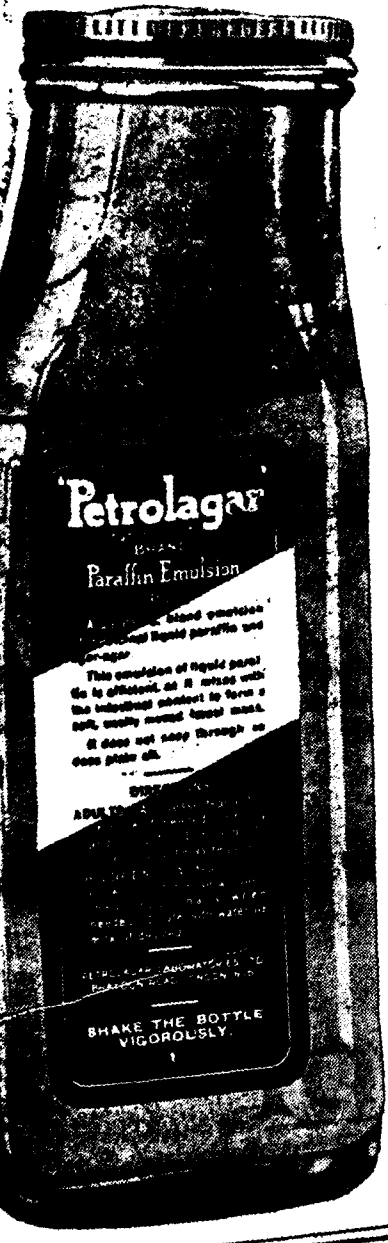

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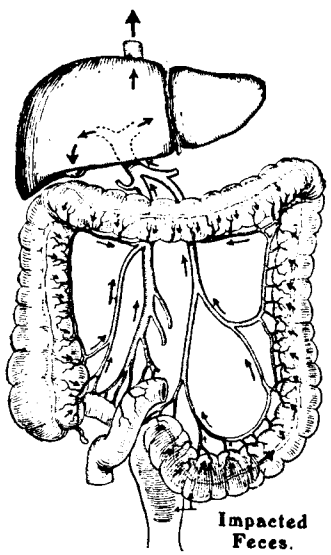

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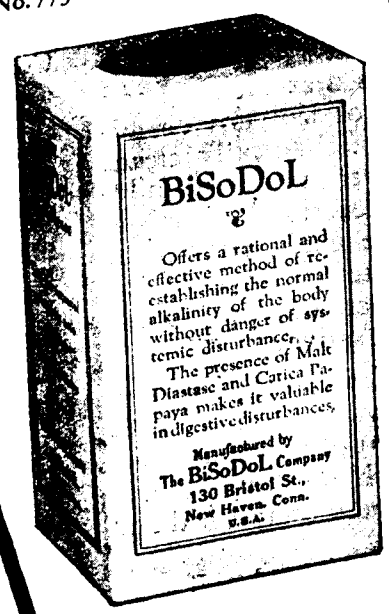

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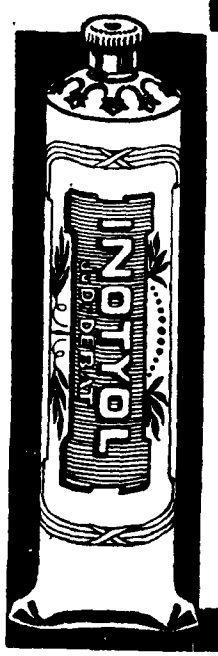

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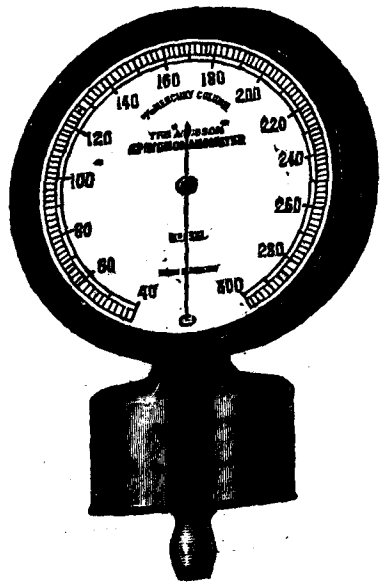

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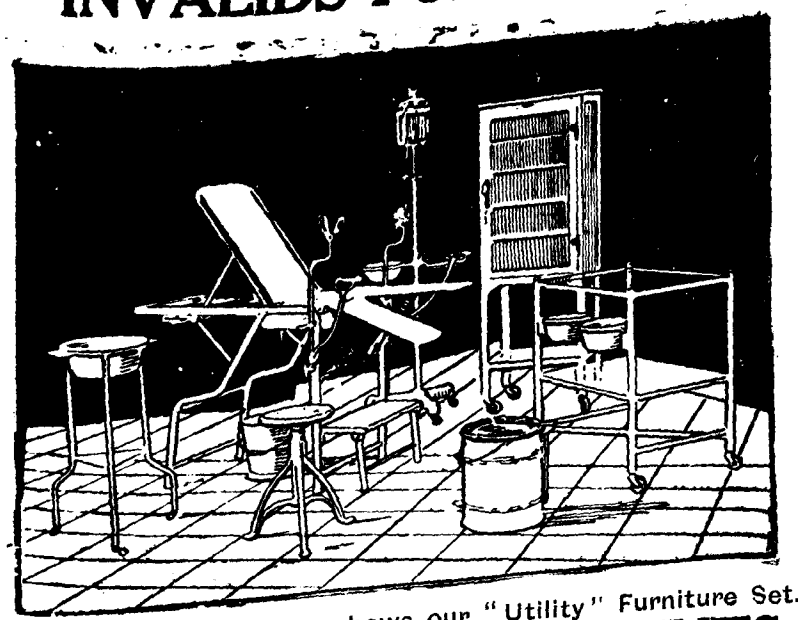

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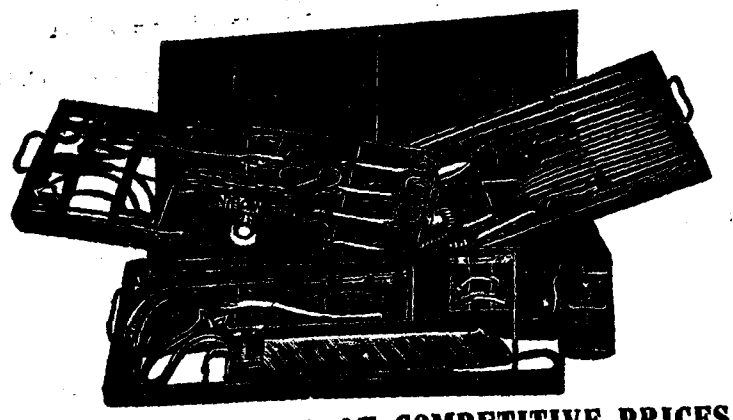

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Original articles

KERATOMALACIA AND SMALL-POX

BY

Dr. E. V. SRINIVASAN, M. B. & C. M.,

Eye Surgeon and Hon. Ophthalmic Surgeon, Government Royapettah Hospital, Madras.

KERATOMALACIA is an interesting disease in the treatment of which a hearty co-operation of an internist cannot be too well appreciated. It is not a rare disease. A busy ophthalmologist may see at least twenty in a year. It is confined exclusively to childhood, affecting both eyes, characterised at the beginning by night blindness which cannot be easily discovered in children. The first discoverable sign is dryness of conjunctiva on both sides of the cornea, the ulceration of the latter involving the whole of the substantiapropria without any marked local symptoms of inflammation. The corneal disintegration develops within a few hours and sloughing may be so complete as to destroy the whole cornea. The initiative signs of photophobia, lachrymation and blepharospasm are only slight. The children are generally poor in health or in the later stages of some exhausting illness like small-pox, or generally suffer from marasmus, or are specimens of faulty nutrition or deranged alimentary function. Hereditary syphilis may be an

important cause. The age of the subjects of this malady is anything between 3 months to 5 years. It is generally fatal, exhaustion or broncho-pneumonia closing the scene. In those who escape the lethal result which only ought to be prayed for, the vision is very much impaired or totally lost of panophthalmitis.

The greatest number of cases are in winter and spring. This may be explained by the fact that cows' milk had become poorer and poorer in fat-soluble vitamin A, while on changing to pasture it becomes richer in the beginning of summer in that material and so able to prevent the appearance of the disease during summer. It is in the spring months the most marked growth of children takes place. There is the greatest demand for A vitamin at that time. Cases occurring outside the annual growth period and in older children have always been in the course of serious infection or diarrhoea when the demand for the vitamin is great or after prolonged deprivation of essential vitamin.

The lack of some essential substance in the dietary or an inability to assimilate such substances is the chief factor in the causation of this condition. These substances or the most important of them seem to be contained in unrefined codliver oil, fresh milk, butter and cream. The grave pessimistic prognosis given in our text books of this disease has to be strongly deprecated considering the good we can do to give at least moving sight to these subjects in later life by undertaking active measures after timely diagnosis, although it is bad enough in any case.

Clinical picture of the case.—Very often, a marasmic child will be brought with swollen, shining, tough, abdomen with marked veins, the chest and limbs quite rickety, face often monkey-like, the skin thrown in folds, looking apparently like a babe of few days when actually 2 or 3 years old. The liver may be enlarged, jaundice may be present with diarrhoea and offensive micturition. The child is in a practically moribund state. The people bringing the child are not alive to the seriousness of the general condition which they have neglected for days together. They just come to show you a small pit in the cornea, while you perceive on close examination a xerosed conjunctiva and perhaps a hypopyon appearing as a small streak in the bottom of the anterior chamber, showing the necrosis is independent of any superficial microbic invasion. The next day or in the same evening the whole cornea becomes necrosed if not in a few days time and finally melts exposing the iris. The keratocele bursts, vision is lost and eye shrinks.

Treatment.—The early dryness of the conjunctiva in a marasmic child must put anyone of us on the guard by instantaneously starting the child on raw unadulterated milk of cow, fed on green fodder if possible, undeterred by the bowel symptoms that may be present and by the statement of parents that it does not tolerate milk. One cannot venture to use cooked milk considering the urgency of energetic and effective treatment in the first few days of the disease. Liberal amount of fruit juice on account of the possible scorbutic taint, thyroid extract on account of the thyroid atrophy commonly seen in the disease, administration of salts like chloride of Ca, Na & Am along with subconjunctival salines, attention to cleanliness, warmth and protection as essential in the local treatment of eyes go a good way in alleviating the Keratomalcie tabes.

Small-pox is responsible for a lot of blindness, the superstitious belief that it is an affliction that should not be treated being greatly responsible. There is always hyperaemia of the conjunctiva accompanying small-pox showing about the 5th day of eruption the intensity of which depending on the involvement of face and head. The pustule very often resembles a phlyctenule in the exposed part of the conjunctiva near the limbus. Sub-conjunctival haemorrhage is often seen frightening the people surrounding. I have known a child born with phthisis bulbi to a mother with small-pox. After the 10th day of eruption cornea gets involved. The ulcer generally does not come on during the height of the disease but only after desiccation starts, manifesting itself in the form of intestitial keratitis, hypopyon ulcer or as small circumscribed infiltrations. Or again a picture of keratomalacia in a marasmic child is exhibited. The intensity of the corneal condition does not seem to bear any proportion to the general condition. Primary iritis, iridocyclitis with K P. occur very often. Retinal haemorrhage has followed small pox, as also Optic Atrophy. Lacrimal sac troubles date very often from the time of small pox. It is said that vaccination has reduced the incidence of small pox, but I would go a step further and say that ophthalmologists have reduced the ocular complications of variola. It may set you wonder why. For small pox has always a predilection to affect eyes that are already affected functionally and organically. It is a matter of common observation with me that the eyes of patients with the alleged ravages of small pox have had already a trachomatous lid, or possibly a big error of refraction as evidence by its existence in a milder degree in the other eye, or that the affected eye was an unused amblyopic squinting eye and not a functioning one. In cases of small pox with iritis or cyclitis there is a constitutional disorder already predisposing for the same—say with a + Wassermann or + V. P reaction. I know the case of a child with glioma of the retina in the right eye getting small pox and I almost felt certain as I was going to the patient that the affected eye must be the diseased

eye and right enough my suspicions turned out true on personal visit. Disuse amblyopia is far and away the commonest cause of variolous affections of the eye. So, as we are treating or curing cases of trachoma, squint, error of refraction, strumous diathesis of the eye, etc and if they fall a victim to this dread disease, results of ocular complications in them will not be so dreadful as in those with defects existing already and that have not had the benefit of the opthalmologist's touch. My whole contention is a good healthy functioning eye is rarely affected or less often affected by small pox or if affected it easily tides over the complications. A very good proof of this is the instance of my boy who had a very severe confluent almost haemorrhagic type of small pox two years ago with not a pin point of face or eyelid or interpalpebral space free from the ravages of the invader, the conjuntiva quite hyperaemia and the cornea showing now and then a white spot. The boy recovered ophthalmologically free with ordinary cleanliness and Argyrol and plasma because his eyes were perfect in every manner before the small pox.

If a non-functioning eye is affected, it seems to me that the power of combating the infection which is a part of the full function of an eye, being deficient, it becomes a very easy matter for the infection to become deeply serious in the vitally lowered frame of a smallpox ridden patient. During the eruption of small-pox, the lids are much swollen and hence are not opened by the patient and perhaps the physician in charge if there is one at all, omits to look at the eye from time to time. And during the desiccation stage the eye lid shrinks and the eye opens, the morbid process is already in progress leaving one ever so much behindhand in undertaking treatment. Hence we have to prevent sticking of the lids, by smearing the margin of the lids with an ointment and pour some argyrol in the eye frequently. Again the contrary condition of the eye being kept open especially when the patient is dozed and is in a toxaemic condition, helps the cornea to get dry and become ulcerated. This should be prevented by keeping the eyelids shut from time to time and by seeing the eye always kept oily by introducing some mild borated vaseline and lanoline ointment. Careful watching in either case will enable us to detect the very beginning of corneal disease and avert the life-long blindness that may ensue. A good prescription is ℥i of Argyrol finely dissolved in ℥i of Ol. Ricini instilled every hour into the threatening eye with an occasional 1 per cent atropin drop.

AETIOLOGY OF SENILE CATARACT

BY

DR. RAM KISHAN HANDA, B. Sc. (Hon.) M.B. B.S.

LITERALLY speaking senile cataract means the cataract of old age. The old age, however, *is not* always accompanied by cataracts; and the cataracts that are observed in old age are not always senile cataracts. The old man may get cataract as a result of traumatism or as the effect of certain systemic diseases e.g. diabetes and albuminurea, or else the cataract may be only a complicated cataract due to keratitis, perforating ulcer of the cornea, irido-cyclitis, choroiditis, absolute glaucoma etc. etc. In a person of comparatively *young* age, on the other hand, apart from above mentioned possible causes of cataract, congenital cataract has also got to be excluded, I mean, the cataract which is due to some disturbance in the normal course of development of the lens in intra-uterine life, or which is due to some intra-uterine inflammatory processes affecting the lens. In the latter case, evidence of such an inflammation is often present in the way of posterior synechea, or netrochromia iridis indicating old cyclitis or irido-cyclitis.

A few words by way of pathology of the senile cataract will not be out of place before discussing the etiology proper. The lens is composed of lens fibres which originate from the anterior cubical epithelial cells lining the lens capsule. As new fibres are formed, the old ones get pushed to the centre. The fibres gradually become denser and less elastic with age probably through loss of water. The old less elastic fibres are therefore aggregated in the centre around the nucleus. The nucleus gradually hardens and shrinks. The soft cortical matter adapts itself to the changing size of the nucleus. When this adaptation takes place irregularly probably on account of the rapid shrinkage of the nucleus, clefts are formed between the fibres particularly of the peripheral equitorial region. These clefts get filled with fluid which coagulates into drops or spheroidal bodies, known as the Morgagnion globules. Fatty degeneration of the fibres also occurs. Partly on account of this and partly on account of the different refractive indices of the fluid and the lens matter opacities appear in the lens.

Recently the subject of the formation of organic opacities in the lens has been studied in more detail. The whole phenomenon is considered to be essentially the coagulation of the proteins of lens fibres. This coagulation is brought about in two stages (a) denaturation—whereby the protein is chemically changed probably

by hydrolysis, into colloidal particles (b) and agglutuiation by which these particles aggregate together into a coagulum. Thus this coagulum forms the opacities.

Now coming to the aetiology of senile cataract, the causes that determine the development of senile opacities are still very much in the dark, in spite of the fact that so much work, in this connection is being done all over the world. Not one satisfactory explanation has been given of the fact why senile cataract involves one eye generally in advance of the other eye. In the following pages I shall attempt to discuss several factors that take part in the determination of senile cataract. Let it be clear that none of these causes can exclusively be held responsible for the disease.

Age.—In India, particularly in the Punjab, statistics regarding age is difficult to collect. The poor and illeterate people particularly the female sex hardly know their ages. When asked they give very funny and vague answers. One is simply forced to put down the age according to one's own judgment. We can therefore only say that according to our experience we find that the disease occurs chiefly in persons of advanced age. Sometimes it develops in the middle aged persons. Occasionally the young men also get it. The youngest senile cataract observed in Sir Ganga Ram Free Hospital, Lahore was in a man 28 years of age. Here it may be noted that in the absence of the facilities of a slit lamp, clinically all other causes for the cataract in the above patient were excluded.

In the United States of America according to the 14th Decennial census it was found that more than 90% of all individuals over 60 years of age showed senile changes in the lens of various degrees. Battista, however, studied several thousands of cases and came to the following conclusion:—

Ages of the Patients

		Percentage of cataract
60 years to 75 years	...	50 %
75 „ to 80 „	...	75 %
85 „ to 90 „	...	90 %
90 „ to 95 „	...	100 %

One thing is absolutely clear from these figures. The number of senile cataracts goes on increasing as the age advances. Over 95 years of age everybody gets cataracts of various degrees.

Sex.—Cataract occurs equally in the males and in the females. During the last 5 years in the clinic of R.S. Dr. S.N. Kaul M.B. Ch. B., Honorary Ophthalmic Surgeon, Sir Ganga Ram Free Hospital, Lahore, 1595 cases of cataracts were seen. Out of these 798 were males and 797 females, curiously enough with the difference of only one patient.

Then again out of 525 cases that submitted for operation 286 were males and 239 females, a difference of 47 cases more in the males than in the females. If we take into consideration the habitual backwardness and naturally less courageous tendencies of the female sex in the Punjab, this difference can easily be accounted for. The cases are however too few for such generalizations.

Incidence. The disease is prevalent all over the world. No race is immune from it. Negroes are said to be peculiarly free from this disease. The following figures will be of interest in this connection.

Countries.	*No. of Eye cases.*	*No. of cataract cases.*	*Percentage.*
Germany	110,242	6,747	6·12 %
Austria	18,606	1,655	8·88 %
France	58,594	6,507	11·11 %
Russia	48,851	3,049	6·24 %
Switzerland	11,359	728	6·41 %
Turkey	11,050	432	3·91 %
Belgium	17,791	757	4·26 %
Holland	2,065	154	7·45 %
England	143,051	8,674	6·06 %
Punjab	1,794,879		— —

These figures show that a sufficient percentage of the eye cases seen in the west are those of cataracts.

In India statistics regarding the number of cataract cases amongst the total number of eye cases, are not available in Government records. In the annual returns submitted to the Inspector Generals of Civil Hospitals from the various dispensaries in the provinces, there is a column showing the total number of eye cases treated. There is also one column which shows the total number of cataract *operations* performed. But there is no column which shows the total number of cataract *cases* seen.

The Punjab

Year	*Cataract operations.*
1928	22,947
1927	22,468
1926	19,341
1925	21,231
Average	21,497

Heredity:—Heridity seems to have some influence in the determination of senile cataract. This influence may not be well marked, but still it cannot be denied. Nettleship in England gives

history of 50 persons spread over 5 generations out of which no less than 20 persons exhibited lenticular opacities of various degrees. Again only recently the history is recorded of a family of 100 persons spread over 5 generations out of which 30 persons showed opacities in the lens.

There is absolutely no doubt that heredity has a vast influence in the determination of congenital cataract at least. Only the other day in a family of 3 brothers and 2 sisters, congenital opacities was observed in 3 of them in Sir Ganga Ram Free Hospital, Lahore.

Faulty metabolism and disturbed nutrition:—Altered composition of the aqueous humour has been regarded as the cause of senile cataract. The lens being a nonvascular structure depends for its nutrition on the aqueous humour. The nutrient material from the aqueous humour is transferred to the lens mainly by osmosis. But along with this there is some selective action of the cells of the lens capsule. Changes in the normal composition of the aqueous and toxins circulating in it injure the capsular epithelium. The cells so injured lose their selective action to a greater or less extent. In such a condition the only law governing the nutrition of the lens that remains is the osmotic pressure law. Hence unaltered aqueous gains access to the lenticular substance. This unaltered aqueous contains a certain percentage of sodium chloride. It has been experimentally proved that globulin of the lens gets dissolved in a weak solution of sodium chloride. Hence here and there by the solution of the lens globulin, fluid collects in the lens; and on account of the different refractive indices of the fluid and the lenticular substance there appear opacities in the lens.

Alteration in the composition of the aqueous humour may be due to local senile changes in the ciliary bodies which manufacture the aqueous humour or they may be due to disturbance in the general metabolism *e.g.* in clear nephritis or in autointoxication. Quite recently experiments were performed by Giddounantoni which point to the fact that in cataractous persons there are decreased renal functions. The quantity of urea in the excreted urine diminishes and the quantity of nitrogen in the blood rises. For example it was found that creatine and creatinine which are the waste products of muscular metabolisim were found in normal persons between 44 to 70 years of age to be 63·25 mg. and 11·28 mg. per litre of blood. In cataractous persons the quantities of creatine and creatinine were found both increased—70·83 mg. and 13·74 mg. respectively per litre quantity of blood.

Diabetic cataract is another example of the cataract produced on account of the disturbed metabolisim in the body. In this case

opacities start in the subcapsular region of the lens. If a fresh human lens is placed in a 5% solution of sugar it becomes opaque. If it is then transferred into plain water it becomes transparent again. In the first case abstraction of water and in the second retransfer of it to the lens occurs by the process of osmosis. Hence it was assumed that such a phenomenon was responsible for the diabetic cataract in vitro also. This however is not the case. The aqueous humour never reaches to such a high concentration of sugar. In persons having 8% of sugar in the urine the aqueous humour was found to contain only 0·5%. Besides if a diabetic cataract is analysed not a trace of sugar is found in it. Hence the cause of such a cataract must be sought elsewhere. It has been found that in persons sufferring from diabetes, changes in the pigment epithelial cells on the posterior surface of the iris occur. Since some of the aqueous humour is manufatured by the iris along with the ciliary bodies, the degenerated pigment epithelium will interfere with the secretion of normal aqueous humour. Hence changes in the normal composition of the aqueous humour. This will injure the capsular epithelium of the lens and as I have already described before, opacities in the lens will develop.

Internal secretions.—The role that internal secretions play in the causation of senile cataract is extremely doubtful. Cataract has often been found when there is decreased function of pancreas resulting in diabetes; in hyper-function of anterior lobe of hypophysis resulting in acromegaly; and in hypofunction of the Thyroid and parathyroids resulting in myotony. Hoffkins estimates in 1912 showed that 10% of the cases of myotonic distrophy are associated with cataractous changes in the lens. Goldman found that on removal of parathyroids in dogs and rats opacities in the lens appeared only when the muscular symptoms of tetany were present. If the muscular symptoms were avoided by the administration of calcium-lactate by mouth the lens remained normal. A. Pellathy and S. Pallathy say that if hypofunction of the parathyroid is the cause of senile cataract, a diminution must be found in the calcium cotents of the blood of such patients. They therefore examined the blood of 48 cases between 45 to 75 years of age, and concluded that the calcium content in blood did not vary in them from the normal (9.8 to 11.7 mm.) per 100 c.c. of blood.

Thyroid and parathyroids have got an antitoxic function. Naturally therefore in hypofunction of the gland some of the toxins will escape destruction and when circulating in the aqueous humour will injure the capsular epithelium thus leading to the lenticular opacities already described.

Thyroid also regulates the oxygen intake and carbon dioxide output. It maintains the constituent of blood, regulates the body temperature, influences the arterial tone and hence the blood pressure, and maintains the activity of the central and the sympathetic nervous system. In hypofunction of the gland therefore, all this will be disturbed leading to alterations in the composition of blood and disturbance in general nutrition. This in turn as already stated will bring about changes in the structure of the ciliary body which secretes or manufactures the aqueous humour. Hence altered composition of the aqueous, injury to the capsular epithelium and opacities in the lens. Giddourantoni however says "my researches do not allow me to admit the existence of any relationship between cataract and glandular disfunction."

In short the whole subject of internal secretion in connection with the development of cataract is shrouded in mystery. To my mind the whole problem of internal secretion is like a deep sea. Everybody, who is interested in research work, in whichever branch of the medicine it may be, must dive into it, whether he comes across the store of pearls at the bottom or returns empty handed disappointed.

Ultra-violet rays:—The role that ultra-violet portion of the solar spectrum plays in the causation of senile cataract is fairly prominent. The fact that most often the incipient senile cataract starts in the lower quadrant of the lens has been adduced as a proof in favour of the theory, that ultra violet rays starting from the sun above are more likely to strike directly the lower peripheral portion of the lens. There is absolutely no doubt that lower and, inner quadrant of the lens is more commonly involved in the incipient stage than any other portion. I have collected only 173 cases of incipient cataracts during the last few months. Out of these 67 showed central and 106 peripheral opacities in the lens. Out of the latter 106 peripheral cataracts 42 showed streaks of opacities in the lower quadrants, 27 in the lateral quadrants, and 37 both in the lower and the lateral quadrants. The upper quadrant of the lens, as far as I have observed, is seen very rarely involved.

It is every day experience, that most of our cases of senile cataracts are found amongst the persons who have lived for a greater portion of their lives out in the country, in the villages and in the fields. Amongst those who come from the congested and thickly populated towns a fairly large number has been mainly doing out door duties in their life. Out of 470 cases of cataracts that I have collected 292

were villagers and 178 inhabitants of the towns and cities. This is because of the reason, as I shall later on state, that the ultra-violet rays are influenced to a very great extent by reflection from the walls of the building, refraction from the glass panes of the windows, doors, and ventilators, by humidity and by various other still unknown factors.

The fact that ultra-violet portion of the spectrum plays an important role in the determination of senile cataract has been studied by an eminent person named Windmark. He performed certain experiments with ultra-violet rays on the atropinized eyes of rabbits. For this he used a carbon-arc lamp of 4,000, C. P. He found that 2 to 4 hours exposure of the atropinized eyes to such a source of the ultra-violet rays produced opacities in the lens. With milder exposures he observed certain changes on histological examination of the lens. It was noticed that in certain places there was cellular proliferation of the capsular epithelium and that many of the cells showed Karyokinetic changes. These changes were associated with swelling and partial destruction of the epithelium of the capsule and also of the anterior lens fibres. Besides, there was transudation of fluid between the capsule and the cortex of the lens. He further showed that ultra-violet portion of the spectrum was responsible for these changes, for none were produced when these rays were cut off by glass or by solution of quinine sulphate.

Reypailhade in France and Hopkin in England found on chemical examination a *sulphur body of special nature in the lens.* This body has been named Philothion by the former and Glutathion by the latter. They have found that the amount of this substance varies under the influence of various agents such as heat, ultra-violet rays etc.

Berge in 1916, concluded from his experiments that complete coagulation of lenticular protiens requires intense exposure to ultra-violet rays. Milder exposures increase the *lability* of the protein particles so that they are readily coagulated by other influences such as changes in the salt concentration of the body fluids.

In order to understand fully what follows, it will not be out of place to say a few words regarding the solar spectrum. Light consists of a combination of waves of different lengths. Different colours of the solar-spectrum are the result of the effect of waves of different lengths upon the retina, the rays near the violet end of the spectrum are of shorter wave lengths and those near the red, of longer wave lengths. The portion of the spectrum that can be directly perceived by the aid of our eyes in the visible spectrum is

comprised between the wave lengths of 3930 A.U. (violet and 7594 A.U. Red.)

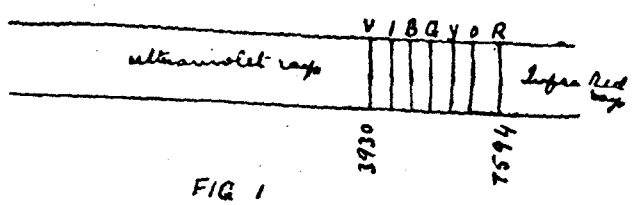


FIG 1

It has been proved however that this visible spectrum is only a part of the solar spectrum. In fact it extends beyond its visible limits at both ends. The portion of the spectrum that extends beyond the violet end is called the ultra violet portion and consists of shorter wave lengths than that of the violet rays (3930). The portion that extends beyond the Red end is called the Infra-Red portion and consists of longer wave lengths than that of the Red (7594). Both the ultra-violet and the Infra-Red rays are invisible and cannot be perceived by the unaided eye. There are however other means of perceiving them. The ultra-violet portion has the property of decomposing salts of silver. Hence it can be perceived by its effects upon the photographic plates. So also the Infra Red rays can be percieved by its effects upon the thermometer. The temperature rises if the blackened bulb of a thermometer is placed in this portion of the spectrum.

In figure 2, E represents the earth; A, A' A" the surrounding atmosphere; O, any one point on the earth; and

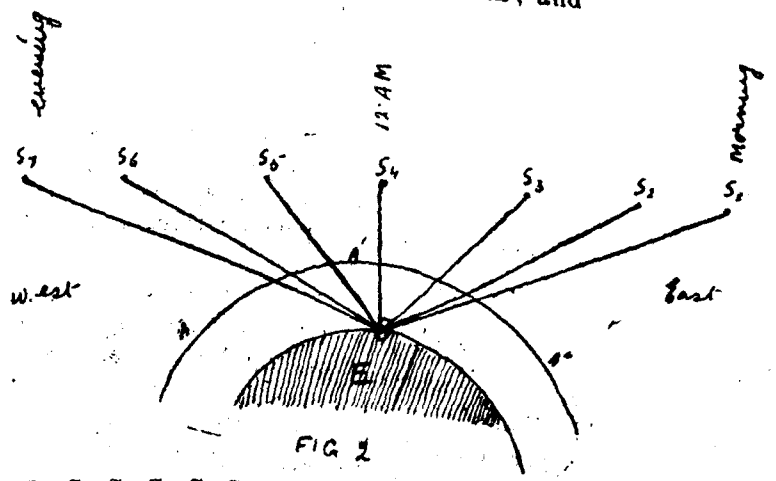


FIG 2

S_1, S_2, S_3, S_4, S_5, S_6, S_7, different position of the sun from morning to evening. From the figure it is evident that the sun's rays have got to travel least thickness of the atmosphere before reaching the earth, when the sun is at S_4 *i.e.*, directly above the head at about 12 noon. In other words the rays from the sun, particularly the ultra-violet rays with which alone we are concerned in this subject, are absorbed to the least extent at 12 noon. The resultant rays, therefore, are most effective at this hour of the day. As the sun approaches the position of 12 noon. (S_4) its rays become gradually more effective on the earth, and as it advances further its rays become less and less effective at that point.

This subject was studied by Cornu, an eminent physicist some time ago. He took series of photographs of the solar spectrum when the sun was at different altitudes from the horizon. His observations were, that the spectrum extended to the following limits at the following hours of the day.

Time			*extent of the spectrum to*
10·30 A.M.	...	...	2955 A.U.
0·2 P.M.	...	...	2950 A.U.
1·18 P.M.	...	...	2955 A.U.
1·50 P.M.	...	...	2970 A.U.
3·9 P.M.	...	...	2990 A.U.
3·40 P.M.	...	...	3045 A.U.
4·17 P.M.	...	...	3045 A.U.
4·38 P.M.	..	...	3070 A.U.

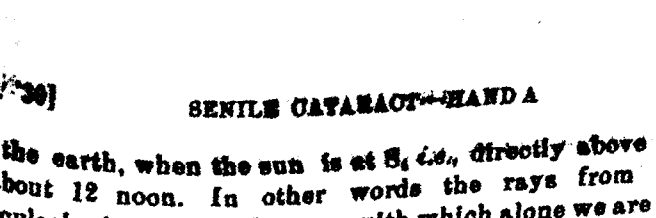


FIG 3

From this it is clear that the spectrum extends to its furthest limit at 0·2 P.M. when the sun was directly above the head and therefore the rays had to pass through the smallest thickness of the atmosphere, and it extended to its shortest limit when the sun was at an angle from the vertical and the rays had to pass through the thicker portion of the atmosphere.

Cornu made further experiments by taking photographs at different levels from the sea and came to the conclusion that for

an ascent of 668 meters 10 Armstrong units of the spectrum were increased.

Miethe and Lehmann repeated the above experiments. Although they did not quite agree with Cornu, still they observed that the distribution of intensity near the end of the spectrum suffers some modifications at different altitudes.

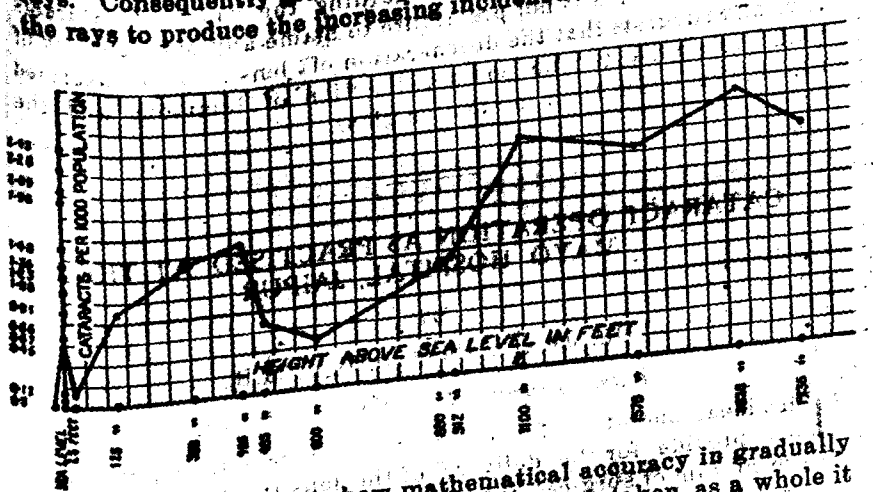
From the above considerations the question naturally arises in one's mind, that if the extent and the intensity of the ultra violet portion of the spectrum is influenced by its partial absorption by the atmosphere and consequently varies at different altitudes above the sea level, and also that if the ultraviolet rays play some part in the determination of senile cataract, does not the incidence of the disease have any relationship to the altitude of the place. With a view to study this point following facts and figures have been collected.

Place.	Number of Eye cases seen during one year.	Number of cataract cases during the same year.	Population on or about the same year.	Number of cataract cases per 1,000 population during the year.	Altitude of the places above sea level.
Holland ...	2,065	154	4,549,000	0·03	Below sea level.
Boston ...	7,212	257	448,477	0·57	Sea level.
New York ...	6,052	226	1,801,000	0·12	25 ft. above sea level.
Odessa ...	4,134	310	338,690	0·91	125 ,, ,,
Frankfort ...	7,483	246	180,000	1·37	300 ,, ,,
St. Petersberg ...	40,835	2,504	1,688,200	1·48	425 ,, ,,
Braslan ...	8,011	223	335,200	0·66	483 ,, ,,
Vienna ...	8,451	618	1,364,500	0·45	600 ,, ,,
Stuttgart ...	3,187	136	125,200	1·08	880 ,, ,,
Basel ...	1,741	86	69,800	1·23	912 ,, ,,
Laibach ...	7,367	695	30,500	2·28	1100 ,, ,,
Salzberg ...	2,788	342	174,000	1·96	1378 ,, ,,
Berne ...	2,329	115	47,150	2·43	1635 ,, ,,
Munich ...	8,802	727	349,000	2·09	1735 ,, ,,

Population of the Punjab (1921)	20,685,024.
Eye Patients	1,794,879.
Cataract operations	21,497.

represents a curve that has been graphed to illustrate the relationship between the incidence of cataract and the altitude. Along the base line are represented the heights above sea level of the different places shown in the table. Along the vertical line are represented the number of cataracts per thousand population of these places. By joining the points of intersection of the projected lines from the figures of the different places the graph has been obtained.

A glance at the figures in the table and the curve drawn to represent them will convince the reader that the curve as a whole has a tendency to rise. In other words, as the altitude goes on rising the number of cataracts goes on increasing. This is because of the reason as already explained, that there is less and less of the surrounding atmosphere as we ascend above the sea level. Hence correspondingly less absorption of the ultra-violet rays. Consequently gradually increasing extent and intensity of the rays to produce the increasing incidence of cataracts.



The curve does not show mathematical accuracy in gradually rising; but there is absolutely no doubt that taken as a whole it has a tendency to rise. There are a number of discrepancies in the rise. But then, as I have already stated, no one factor alone, but several taken together are responsible for the determination of the disease. The Infra-red rays, the temperature, the rainfall, the latitude, the humidity and in fact all those factors that influence the climatic and the geographical conditions of a place will modify the incidence of cataract. Then again although uninfluenced by the quantity of carbon dioxide and Nitrogen present in the atmosphere above a certain place, the ultra-violet rays are materially modified, probably by absorption, in its resultant intensity and to extent by water vapours, oxygen and particularly the ozone.

The figures in the table have been taken from recent countries in Europe. It is a pity that in India statistics are not at all available or are altogether incomplete. Inspite of best efforts on our part, I and my boss Dr. S. N. Kaul, could induce the authorities in the provinces of India, to even reply our letters of enquiries. Statistics in India would certainly further elucidated my point.

Infra-Red Rays.—The role that infra-red rays play in causation of senile cataract is much more in the dark. Glassblowers cataract has been specially attributed to the effect infra-red rays.

Rollet, Professor of ophthalmology in Lyon concludes from his own researches, as well as from those of others, that the percentage of cataracts in glass workers is 22·6 as compared to the percentage of 0·78 among the population in general. Rollet asks whether in view of the diversity of opinion regarding the cause of cataract in glass workers, is it not premature to blame any one category of rays and suggests that the degeneration of lens may be ascribed with probability to the combined action of luminous and the calorific radiation from the molten glass.

CATARACT OPERATION AS PRACTISED AT THE MAYO HOSPITAL, JAIPUR

BY

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THE ideal operation for cataract would be one which would provide for the delivery of the lens in its capsule with the minimum of surgical interference with the eye-ball, with the least possible disturbance of natural relations, which would not tax the nerves of the patient with a long ritual, and which would leave very little margin for complications to occur.

The lens coucher's operation would have approached this ideal, had it not been for its leaving behind the cataractous lens oft times to act as a foreign body (in the eyeball), matter out of place, setting up iridocyclitis or secondary glaucoma, with consequent irreparable damage to the eye and permanent loss of vision.

The time-honoured capsulotomy operation, though easier to perform than the intracapsular, has yet two great disadvantages,

(a) that of an iridectomy which cuts out a portion of the iris-diaphragm designed by wise Nature to regulate the admission of light to the interior of the camera, thereby putting it partly out of gear and (b) the dire resultant dazzling and disturbed vision, and (b) the dire uncertainty of the removal of cortical matter and capsule in toto. At any time both surgeon and patient find to their utter disappointment, when the bandage is removed a few days after the operation, tags of capsule occluding the coloboma, and refusing the light sought for privilege of restoration of the visual function, except a mere perception, and perhaps projection too, of light. These disadvantages far outweigh the facility of the capsulotomy operation. To remedy one of these, surgeons have been ingenuous enough to wash out the remnants of the cataract, but irrigation in itself if sufficiently prolonged is apt to inflict some mechanical damage upon the extremely delicate structures and thereby favour the chances of sepsis. Capsulotomy without iridectomy does away with the other defect, but this still further adds to the difficulty of the complete removal of lens debris which tends to stick out of sight behind the iris and baffles the attempts of the Surgeon, soon to re-appear and to mar the results of the operation. Thus it is very hard to break this vicious circle in the case of the capsulotomy operation, and this is one of the main reasons why it is being superseded by the intracapsular one, which although difficult to perform, gives infinitely better results. Be that as it may, one cannot do without capsulotomy, because it is the operation of choice in the case of juveniles, in whom the zonule is too strong to recommend the intracapsular method. And if it is done without excising a portion of the iris and no cortical matter or capsule is left behind, then the optical results are as good as desired. This is what is being done at this hospital in a certain proportion of the juvenile cataracts.

The removal of the opaque lens in its entirety has off and on engaged the minds of ophthalmic surgeons all over the world from the dawn of eye surgery up to the present day, because this is the only object for which the patient seeks surgical aid, and if anything is unfortunately left behind the patient never again returns to have his other eye exposed to the same risk. To gain this object, thoughtful surgeons devised the intracapsular operation, but the dangers of loss of vitreous, prolapse of iris etc. long prevented it from displacing capsulotomy. From time to time expression of the lens was attempted but was soon relegated to obscurity on account of the undesirable consequences. There was some missing link in the chain of operative procedure, lack of which spoiled the whole fun. It was for Col. Henry Smith, of Jullundhur fame, to fill up this gap. This he did and set the intracapsular operation

upon such a solid footing as never to disappear again. His original research and special technique so transformed it as to be manageable by the average surgeon almost anywhere. The reader is referred to Col. Smith's masterly exposition of the subject in his celebrated book on cataract, for both the historical and the surgical review of the operation. Suffice it, here to say, that day in and day out Smith's operation is gaining ground on account of its beautiful results.

Rai Bahadur Pt. Hariskhunker, while he was attached to the Delhi Hospital, devised a method of intracapsular extraction in which he first made a superior conjunctival flap up to the corneoscleral margin, and then through that margin he entered a keratome into the anterior chamber, to make a hole for a pair of blunt-pointed curved on flat fine scissors with which he subconjunctivally cut through about three-fifths of the corneoscleral junction; having done that he caught hold of the flap with fixation forceps, lifted it up and with the hook placed on the lower corneoscleral junction, expressed the lens out in its capsule; no iridectomy was done and he then used to put in a few drops of saline solution into the anterior chamber which was thus reformed and the pupil at once contracted with complete reposition of the iris. The advantage of the corneo-conjunctival flap was that the vitreous was under full control of the operator, sinking down as the flap was lifted up and vice versa. Control of the lids and eyebrow was brought about by a special retractor. The immediate cosmetic result of the operation was really good, and the conjunctival flap united within 24 hours, but the greatest disadvantage was the intense inflammatory reaction excited by the excessive mutilation of the cornea, the conjunctiva being awfully angry and chemotic for a long time after the operation, and that is why the method was not universally adopted.

The latest development has been the invention of the "Erisophake", which removes the lens by means of suction exercised through a cup applied over it and connected with an exhaust. It is yet to be seen whether this will reach every nook and corner of the ophthalmic world.

Soon after Col. Smith's epoch-making revival and remodelling of intracapsular extraction, patients and surgeons flocked to his clinic, with the result that this operation became more and more widely known and began to be practised in different centres. It was introduced at the Mayo Hospital many years ago and until recently it was the operation of choice. But here attempts were being made to eliminate the iridectomy which however was not possible for some time on account of the frequency of prolapse in

cases where the iris was left intact. The reason for leaving out the iris, as it is, is quite obvious, because, as pointed out under capsulotomy, when the natural diaphragm is thrown out of action by taking away a portion of it, the adaptability of the eye to varying amounts of light is gone, and although the upper lid rises to the occasion by shutting out excessive light, yet still there is a certain amount of glare which the patient complains of as blurring his vision. This glare is totally absent in non-iridectomy eyes which differ from the normal eye only in respect of the aphakia, a deficiency filled up later on by a pair of specs. The main dynamic factor responsible for after prolapse of the iris, where it has been left intact, is the aqueous humour, which as it re-collects in the chambers, while the patient is kept in the recumbent position after operation, flows out in the line of least resistance through the corneal incision and pushes out the iris which thus gets incarcerated in the wound and stays there. This is further aided by the patient every now and again squeezing the eye-ball. Every surgeon is familiar with the way the iris shoots out under pressure of the out-flowing aqueous when the cornea is incised, specially in prominent eyes, when doing an optical iridectomy in which the pressure of the eyelids is never totally taken away from the eye-ball. The pressure of the lids upon the ball is restored as soon as the retraction is done away with after the operation of cataract expression, and one can easily imagine how it helps the aqueous in bringing about prolapse of iris, all the more so when the patient is a silent squeezer. Thus the next question was how to prevent prolapse of the iris in non-iridectomy cases.

After ruling out good many theoretical considerations, thought was concentrated upon the way the aqueous collected in the chambers with the patient lying in bed, and it was argued that if, instead of being kept in the recumbent position which had been the classical teaching, the patient was made to sit up for a few hours following the operation, the aqueous, during the process of reaccumulation, will, according to the law of gravity, collect from the bottom of the posterior chamber upwards, until it reached the pupil, through which opening it will pass to the bottom of the anterior chamber and commence filling it. There will now be aqueous on either side of the iris below. As soon as the level of the pupil is passed the fluid will rise up both in front of and behind the iris which will hang like a curtain, the aqueous supporting it by its own hydrostatic pressure directed upon either aspect of the screen, until the chambers are full. Thus the very factor which contributed towards displacement of the iris in the recumbent position will now guard it against being prolapsed due to the upright posture. In the supine decubitus the force of the fluid is

unequal upon the two faces of the diaphragm, because, again
cording to gravity, it first collects in the posterior chamber
floats the iris upwards, a little escaping through the pupil into
anterior chamber, from which it gravitates out through
wound as fast as it collects. Thus there being positive pressu
below while it is negative above, the iris is approximate
to the under surface of the cornea, and for a time clos
the wound against the waters, but eventually gives way to
rising pressure which pushes it out of the wound to let out
fluid. All this is still further accelerated as the eyeball is roll
upwards and backwards into the orbit, thereby enhancing
expulsive mechanism. These untoward circumstances do n
obtain when the iris hangs in the accumulating aqueous wi
more or less equal pressure of fluid on both sides.

The above physical facts paved the way for a heroic departur
from gospel teaching, and the experiment of making the patien
sit up till the evening, after operation in the morning, was carrie
out. All apprehensions were found to be groundless. Prolapse o
the iris, which was fairly common in non-iridectomy expressions,
was now reduced to an irreducible minimum, appearing only in
few silent squeezers. The patients made uneventful recoveries
with beautiful eyes and splendid sight, without any glare in broad
daylight.

The iris, if left intact, instead of being an obstacle to th
delivery of the lens, rather helps to prevent its bursting by th
sharp scleral edge of the incision, by spreading out over it like
soft pad over which the out-coming lens glides safely. Thi
spreading out, however, appears to be responsible for a certain
amount of temporary paresis of the iris, which disables it fro
springing back into its normal position. But it is quite easily
remedied, for the iris can instantly be reposed with a repositor an
an active and central pupil ensured, with diminished chances o
prolapse.

This was the first modification. The next was how to avoi
the opaque scar of a radial incision, which inevitably encroache
upon that much transparent cornea. To meet this end the incisio
was ended through the corneoscleral junction, in which region i
heals more quickly and becomes indistinguishable after some time
In fact, in many of the cases done with the corneo-scleral inc
sion and without an iridectomy, it is at first sight impossible
say whether that eye has undergone an operation for cataract
until closer observation reveals the true state of affairs.

With these alterations the operation now stands, at present, a
follows :—

Illustrates the lid control during operation.

Illustrates the optical results after the operation.

The eye-lashes are cut and the face is washed with soap and water; a drop of atropine lotion (0.5%) is instilled two hours before the operation; immediately before the operation the eyes are thoroughly irrigated for two minutes with salt lotion (0·75%) and wiped with a sterilized handkerchief. Cocaine lotion (20 grs. to 1 ounce) with adrenaline minim 5 per ounce is next dropped into both eyes, thrice, at intervals of three minutes, with the patient lying down. Cataract knives, Von Graefe's, with narrow blades and finely graded thickness, are preferred and are sterilized by dipping in hot paraffin oil, after cleaning first with absolute alcohol. All other instruments are boiled in a perforated tray which holds them on the table. Swabs are made of square pieces of linen which are so folded up as to make rectangular pieces, like a book, with the free margins tucked inside in order to leave behind no loose threads into the field of operation. All swabs, handkerchiefs, masks, towels, bandages, cotton etc. are sterilized. Instruments are sterilized after every individual operation. Boiled oil is used as lubricant for the knife when making the incision, and boiled distilled water to dip in instruments for cleansing purposes during operation. Rectified spirit is used for the hands.

All paraphernalia being ready, the patient is brought to the table, upon which the durri of the stretcher has already been spread. The instrument tray is at the head of the table on a sterilized towel, with the cups of oil and distilled water and a basin beside it, all to the right of the operator, who stands at the head-side of the table; the assistants, one or two as the case may be, standing to the left of the operator by the side of the patient, with masks and sterilized cotton gloves. The northern side of the operation room is a big arched portal leading immediately into a glass house with big panes in the gable roof as well as in the sides, admitting a flood of light, without disturbing reflections, which can be controlled at will by black screens across the panes.

Smith's speculum is inserted and the incision is done. The knife is entered at 9 in the right eye and at 3 in the left, and the counter-puncture is done at 3 in the right and at 9 in the left, and then it is carried up right through the corneo-scleral junction. To avoid the iris the plane of the knife is altered as necessary. The puncture and counter-puncture are done as gentle stabs. If a conjunctival flap is cut while finishing the incision it is no matter for regret, the only thing to do is to cut through it as near the cornea as possible, so that it may not get caught between the lips of the incision after operation.

The speculum is taken out and the lids are retracted in the usual way. An alternative method is, that, one assistant retracts

the eyebrow and the lids and another by his side props up the speculum (which is not taken out), so that a dimple is evident in the cornea to show that the vitreous has sunk down.

Smith's hook is gently swung from side to side over the lower corneo-scleral arc to dislocate the lens, and as soon as that occurs, the spatula is made to delicately depress the scleral lip of the incision, while the hook insinuates the cornea under the advancing lens, until the delivery is three-fourths done, i. e., the biggest diameter of the lens has nearly passed out of the wound, when the pressure is at once released and the delivery is completed by the concavity of the hook goading out the lens.

The iris is deposited and saline is run into the anterior chamber with a fine dropper; the pupil at once contracts and normal relations are more or less resumed. It should be seen that the pupil is central, otherwise if it is eccentric now, it shall be found to be the same when the bandage is removed.

The retractor or speculum, whichever be used, is removed; the patient is asked to gently close the eyes as if going to sleep, a pad of cotton-wool is applied and the eyes are bandaged. The patient sits up till sunset. If everything is alright, the bandage is taken away on the 10th day and a green shade is applied.

Morgaganian cataracts mostly tumble. In the case of a dry lens, sometimes vitreous presents first and then the lens has to be taken out on a vectis. The vitreous falls back. Capsulotomy is done for juvenile cataracts. Occasionally capsulotomy is done in the case of morgagnian cataracts too, when the cortex is quite fluid, the capsule thin and the nucleus small. Sometimes, during delivery, the nucleus of such a fluid cataract engages in a plane at right angles to that of the incision and refuses to come out; in such a case by gentle stroking it is brought into line with the exit and is then easily delivered. The majority of cataracts may thus be taken out with a two steps operation within about 30 to 60 seconds. If the Zonule be too strong or if there be synechiae present the cataract may take some time to dislocate, but by patience and dexterity every difficulty can be surmounted, without the occurrence of complications.

Generelly there is no loss of vitreous, but in a few cases of exceptionally dry lens, or in cases where the lens is too big or the incision is a bit smaller, or again if the vitreous is rather fluid, and the lens does not come out with ordinary pressure it may present and even escape but the loss of a few drops of that fluid does no harm. Somehow or other a dry lens is almost always concomitant with a fluid vitreous. Usually in such cases when the vitreous comes first, if the pressure on the eyeball is carefully

regulated, the hyaloid does not suffer a rupture, and as soon as the lens is out the vitreous sinks back without further trouble.

Now and again, specially in nervous patients, who constantly roll the eye about during the operation, and in whom the capsule is rather thin, it may burst while the lens is still inside the ball or just when it is out, but such cases are few and far between. If, notwithstanding all possible care, some part of the capsule is left behind, the eye is left alone for a few weeks until all reaction completely subsides, when it is sucked out with a lachrymal syringe nozzle attached to a rubber tube and worked by the operator through a mouth-piece.

Rarely the knife may be entered with the wrong edge uppermost; this can be corrected without taking it out by tilting it over inside the chamber.

Another rare complication is, the cutting out, though against the operators' will, of a buttonhole in the iris by the knife as it travels past the chamber. This is almost always due to the operator being taken unawares by the patient suddenly moving the eyeball and thereby spoiling the adjustment of the planes of the iris and of the knife with regard to each other. This buttonhole, if big enough, prevents the lens from coming out, because its (lens) presenting part engages in the hole; if this be the case, then the iris with the hole may be turned over with the spatula towards its attached margin, or the bridge may be cut off.

Prolapse of the iris is treated with the cautery. That sums up some of the complications.

Given an average patient, and a steady operator with a cool mind, this operation gives excellent results, as may be seen from the accompanying photograph.

In regard to statistics I shall submit a review later on.

I am highly indebted to my chief, Rai Bahadur Doctor Daljang Singh Khanka, M. B., for his kind permission to publish the method he practises.

CATARACT EXTRACTION WITH CONJUNCTIVAL BRIDGE

BY

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DURING the course of the last 12 months, I have performed 200 cataract extractions by this method; and I have found that the operation is not so difficult as it looks and is certainly much safer for the patient.

The following are the advantages of the operation:—

(1) Quick healing of the wound.

(2) Reduced chances of prolapse of vitreous and iris.

(3) Danger of secondary sepsis is lessened.

(4) In very old patients who cannot lie in bed for a long time, in patients with cough and in refractory patients it is a boon.

(5) Simple extraction can be performed with greater confidence and it gives excellent results.

If prolapse of vitreous occurs it is always limited in quantity.

The stay of the patient in the hospital is curtailed as few complications occur and the patients can be allowed to sit up and move about earlier. Haemorrhage is seldom so profuse as to interfere with the satisfactory performance of the operation, especially if adrenalin has been used with cocain.

The technique of the operation: I first thoroughly cocanise the eye and dilate the pupil with atropine before operation and then make a fairly large incision embracing nearly the upper half of the cornea. When the knife emerges at the upper limbus it is glided under the conjunctiva and with a sweeping movement of the narrower end of the knife I make a conjunctival bridge of the required size and shape and at the desired position.

The bridge is about 4 to 5 mm. broad at the base near the limbus and tapers towards the apex, making it triangular in shape. The length of the bridge is about 6 to 7 mm. I draw the point of the knife towards the nasal side whilst fashioning the bridge, so that it comes to lie in a slanting position, stretching from the middle of the cornea to the inner side of the sclera. This position of the bridge has an advantage in that it leaves sufficient space on the outer side for the lens to come out. If, however, the lens gets

caught under the bridge, a tilting movement given to the edge of the lens with fisher's pointed end of the spatula greatly facilitates the delivery of the lens.

Even a jet of saline lotion with the nozzle introduced into the A. C. expels the lens in many cases.

But there are occasions on which you have to cut the bridge, but they are few and far between. They occur where the lens is very hard and large and the base of the bridge is broad. But cutting the bridge entails no disadvantages.

Intracapsular extraction.—I have done a few cases of intracapsular extraction by this method and with comparative safety. Here there is no subsequent incarceration of the iris in the wound as the incision is not corneal. If one selects one's cases this operation is not so difficult.

I have found morgagnian cataracts the easiest to take out.

Simple extraction also, whether intracapsular or extracapsular, is easy to perform especially as the pupil is dilated beforehand and chances of prolapse of iris are reduced to a minimum by the bridge.

The bridge serves the same purpose as the corneal suture without the disadvantages of the latter.

Latterly, after simple extractions, I am putting the patients in bed in a reclining position, on a bed rest, as in this position the iris would tend to hang down by gravity. The result is very satisfactory both from the surgeon's and the patient's point of view.

The analysis of 200 cases:

		Cases.
Extra capsular extraction		
(*a*) Combined	140	176
(*b*) Simple	36	
Intracapsular extraction		
(*a*) Combined	18	24
(*b*) Simple	6	
Escape of vitreous after delivery of the lens		
Combined operation	3	
Simple ,,	2	
Escape of vitreous before delivery of the lens		
Intra capsular	2	

In one case the lens was taken out by the vectis, and in the other the lens sank down in the vitreous. There were no cases of secondary sepsis. The bridge had to be cut in 12 cases.

days, whereas gonorrhœal ophthalmia is still a rare one. The cause of this, in my opinion, is the instinctive closure of the eye lids when the infected fingers or materials etc. approach the eye, making it difficult for a person to touch his own conjunctiva. It is only one eye which is affected with this disease specially when it arises from inoculation.

Gonorrhoeal ophthalmia from "inoculation".—Males are affected more than females. This disease even infects new-born infants. It generally affects one eye, right one in right handed people and left eye in left handed people. In adults true gonorrhoeal conjunctivitis is not a very common affection. According to "White" it occurs in every seven or eight hundred cases of gonorrhœa.

Etiology.—Acute blennorrhœa is produced solely by infection. The virus can be introduced into the eye from the genitals directly as an individual affected with gonorrhœa touches his eye with the same unclean fingers after they have been in contact with the genitals. The infection can also come from the infected eye to the sound eye because when the infected eye is affected with profuse discharge the other may get infection by the transfer of the secretion to it. Persons nursing or living with the infected persons or using his used materials may also get the disease. I have seen a case myself that during douching the eye of a patient affected with gonorrhœal ophthalmia one or two drops of water spurted from the infected eye into the left eye of the man douching. Though he washed his eyes immediately with mercury lotion 1 in 5,000 and about 3 drops of silver nitrate lotion 2 gr. to ℥i was dropped but still he got the disease and suffered for a long time. "The disease is less found in Palestine and Egypt" (Fuchs).

Symptoms and course.—When the infection occurs the disease breaks out after a certain period of incubation, the duration of which varies according to the intensity of the infection, from a few hours upto three days.

Local symptoms.—Lids grow red, become hot, enormously swollen and tense; the upper one over-hanging the lower one and edged with pus. There is a severe oedema generally to such an extent that the patient cannot open his eye and it is sometimes so great that even the doctor is unable to separate the lids to bring the cornea into view.

Conjunctivae.—The palpebral and its retrotarsal fold is intensely reddened and greatly swollen; it is tense and has got granular uneven surface.

The bulbar conjunctiva like the palpebral conjunctiva is tense, swollen and its swelling stops short at the corneal margin forming a "pit". This is known as "Pitting of the Cornea." It is also severely red. Such conjunctiva is said to be "Chemosed conjunctiva".

Cornea.—It is hazy and is covered with the discharge as round about it there stands a wall of chemosed bulbar conjunctiva which do not allow the discharge to come out of the pit, hence the condition of the cornea becomes very dangerous because the gonococci are the only virus which can penetrate the cornea directly causing ulceration and leading even to panophthalmitis.

Sight.—If there is less deposit of secretion there remains marked photophobia but if the secretion is in abundance blurring of the sight occurs leading even to complete blindness.

Discharge.—It is just like meat juice in which some flakes of pus float. The discharge is highly contagious and it should not be allowed to touch the other eye.

The eye as a whole is very much swollen even above the level of the tip of the nose. It is tender to touch and the patient complains of hot smarting pain in the eye.

Constitutional symptoms.—Preauricular glands are enlarged, tender and may sometimes suppurate. There is slight fever; it may even go up to 103° to 104°. There is general pain all over the body specially round about the waist and calf muscles. There is dull aching pain also in brow and temple. Sometimes there is severe headache. Patient complains of malaise, loss of appetite, constipation and insomina.

Some authors describe the the symptoms in stages. They say that there are three stages viz:—

1. Stage of infiltration.
2. Stage of purulent discharge.
3. Stage of convalescence or papillary swelling.

1. All the above symptoms described come under the heading of the first stage *i.e.* stage of infiltration which lasts for about two to three days and is followed by the second stage.

2. *Stage of purulent discharge or pyorrhoea.* It succeeds the first stage. The swelling of lids and conjunctivas and chemosis diminish. This fact is recognised by the return of wrinkle over the skin of the lids. Simultaneously with this a very profuse purulent discharge appears, which trickles out continually from the palpebral fissure; hence the name "Pyorrhoea" or "Flow of Pus" given to this stage. This condition continues for two to three weeks. All the symptoms gradually diminish. The eye reaches its normal condition within four to six weeks.

3. *Stage of convalescence or papillary swelling.* The eye may return to its normal condition within three to six weeks but more frequently the palpebral conjunctiva and its retrotarsal fold re-

maining thickened and red specially upon the tarsus where the surface looks uneven, granular or velvety. The ocular conjunctiva is hyperaemic only. There are no symptoms of discharge, or round swelling or chemosis in this stage. This stage is also known as "chronic blennorrhoea". This lasts for some months.

After this stage is over there usually remains slight but permanent cicatrices of the conjunctiva.

Course.—The disease occurs in various degrees of severity; all depend upon the intensity of infection. If the infection is a mild one, the symptoms are also not virulent; hence we call this type "Subacute Blennorrhoea." It takes only 2 to 3 weeks to cure. But if the degree of infection is severer and the patient presents all the symptoms above described then we call this type as "Acute blennorrhoea" and it lasts months and the third form is the severest type which exhibits rather different features in which there may be a deposit of croupous membrane upon the conjunctiva. There is great swelling so much so that it exceeds even above the level of the tip of the nose. In one of my cases I marked this. Conjunctiva in some places appears to be anaemic due to the pressure of inflammation. This type takes months to cure but usually it develops into panophthalmitis and the patient loses his eye.

Complications.—The most fatal complication of acute blennorrhoea is the involvement of the cornea, by which, in many cases, incurable blindness is produced. At first the cornea presents a diffused haziness throughout its whole length and breadth which soon becomes yellow and breaks down into ulcers. The ulcers vary in situation, size and course. They may be central or marginal. The ulcers are due to the necrosis of the epithelium of the cornea by the direct invasion of the virus. This generally happens in the case of central ulcers; but as regards the cause of the marginal ulcers we may attribute it to the collection of discharge at the margin of the cornea due to the chemosis of the bulbar conjunctiva (pitting of the cornea). These infiltrations of the margin may give rise to speedy perforation of the cornea which forms an outlet for the purulent discharge and brings about these purulent infiltrations of the cornea to stand still and so a portion of the cornea is saved. Sometimes it may so happen that these marginal infiltrations become rapidly confluent and unite into a yellow ring round about the cornea forming what is known as "Annular abscess."

There may occur perforation of the cornea due to its destruction by the organisms with or without the incarceration of the iris. The result of this is either formation of cicatrices with incarceration of the iris or it may even be panophthalmitis.

The degree of involvement of the cornea and its destruction depend upon the intensity of infection, swelling and chemosis. The severer the inflammation, the earlier the involvement; the milder the inflammation, the later the involvement; the earlier the involvement, the graver the result; the later the involvement, the more favourable is the result and is generally possible to be checked.

The other complications are keratitis, iritis, iridocyclitis, staphyloma and even panophthalmitis. As regards the diminution of vision I should say that it occurs in 99% of cases but it may be more or less, which varies with the intensity of infection and corneal involvement.

Gonorrhoeal arthritis is not uncommon, and endocarditis and septicaemia may arise in complication. It confirms no immunity.

Diagnosis.—It resembles the Egyptian ophthalmia, catarrhal conjunctivitis and ophthalmia due to the infection of streptococci and staphylococci but the following cardinal points will always help in distinguishing a case of acute blennorrhoea from that of other similar diseases.

1. Rapid and intense swelling of the conjunctiva which is very tense.
2. Granular and uneven surface of the palpebral conjunctiva.
3. Severe chemosis of ocular conjunctiva.
4. Pitting of the cornea.
5. Diffuse haziness of the cornea.
6. The peculiar meat juice like discharge with flakes of pus floating in it.
7. Constitutional symptoms e.g. pyrexia, constipation, severe headache and so on.
8. Enlargement of the preauricular gland.
9. Microscopical and cultural examination of the discharge from the eye.
10. History of gonorrhoea in the patient or in another with whom he might have recently lived.

Prognosis.—In all genuine cases it may be regarded as serious but it depends chiefly upon the severity of the case and upon the behaviour of the cornea. Hirschberg says 11 per cent. of present day cases retain fair vision but not good and only 17 per cent. become blind.

Prophylaxis.—Men with urethral and women with vaginal discharges should be asked to be very careful as regards their eyes and cleanliness of the fingers etc. with which they touch their eyes.

as it is the uncleaned finger or infected towels etc. which cause the disease. Hence they should be strenuously urged upon to keep requisite cleanliness. If the one eye is affected the other eye should be protected either by bandaging or by Buller's shield.

Bandaging.—The palpebral fissure is first closed by means of some narrow strips of sticking plaster applied in a vertical direction. Then the hollow about the eye is filled up with cotton pad and the whole is covered by a strip of plaster which is cut to the proper shape and is carefully attached all round the margins of the orbit. In order to secure it better, the edges of the flap and the adjacent skin may further be coated with collodion.

Buller'i shield.—It consists of a watch glass stuck in a frame of adhesive plaster or better rubber. The safe eye is at once sealed up with this. The rubber of the shield is fastened to the face and nose except at the lower outer angle where a small piece of tubing is inserted under the edge. This is a means of ventilation which prevents glass from becoming hazy. The shield must specially be sealed near the nose i.e., on the side of the source of infection. The patient should always sleep on the side of the affected eye.

To prevent the spread of the disease strict cleanliness should be observed by the patient as well as by those around him including doctors, compounders and nurses.

The physicians, nurses and compounders should always use protective (large, colourless) goggles. If in spite of this protection discharge spurts into the eye, the eye should be thoroughly washed out with Mercury Perchloride lotion 1 in 10,000 and a couple of drops of 1 per cent. silver nitrate lotion should be dropped into the eye at once and if possible the eye-lids may be painted with silver nitrate lotion 10 gr. to an oz. and washed with normal saline lotion. The eye should be watched very carefully and no drastic treatment should be taken unless the conjunctivitis supervenes. For a few hours cold compresses must be done. The hands and aprons of the physicians and nurses should thoroughly be sterilized before using them again. The clothes and handkerchiefs used by the patient should thoroughly be sterilized or if possible may be burnt altogether.

Treatment.—The treatment which I did in the Thompson Eye Hospital, Agra, is divided into three heads :—

1. Hygienic treatment.
2. Dietic treatment.
3. Medicinal treatment which again is subdivided into two classes viz. (*a*) Local. (*b*) General.

1. *Hygienic treatment.*—The patient should be kept in a well ventilated but dark room. The room should be perfectly neat and clean with a clean bed for the patient and one for the attendant. The bed sheets and pillow cases should be changed daily. His clothings should be light, loose and clean. They should also be changed daily and if possible twice daily. His dressings and other things which may be used by him should either be sterilized thoroughly or burnt altogether. He should be given perfect rest and should be confined to bed. For recreation of the patient there may be a gramophone with pleasing records or a set of radio which will make the patient unmindful of his agony. The other things may be done according to the circumstances.

2. *Dietic treatment.*—The patient should be given light and nourishing diet. The quality of the diet depends upon the choice of the patient but in my opinion meat diet or diet with much spices and with much salt is rather injurious, so it is better for all kinds (with different choice) of patients to use milk, sago, biscuit, Quaker's oats, ovaltine, dalia, dal, soup, dried fruits, specially grapes, date-palms and even fresh fruits if found at that time and if advised by the physicians. No heavy diet should be given which may cause constipation, headache and other troubles.

3. *Medicinal treatment.* (a) Local treatment.—It depends chiefly upon the intensity of the infection. If the infection is of a mild type the eye should be thoroughly washed with lotions of Mercury Perchloride (1 in 10,000 or 20,000) or potassium permanganate (1 in. 5,000) or picric acid (½ gr. to ℥j) or Acriflavin (½ gr. to ℥i). Some use even argyrol or protargol lotion 4 per cent. But I have found luke warm boric lotion (℥i to ℥i) is the best of all. of course, in mild cases, and in severe cases either Acriflavin lotion or mercury perchloride. It is an admitted fact that in the begnnining we do not want to use such strong lotions which may even have bad effects on the eye itself; hence whatever lotions we use have not got so much germicidal power as to kill gonococci. Our chief aim in douching the eye with some antiseptic lotion is to wash away the discharge and together with it removing the virus mechanically. The mouth of the nozzle must be a flattened one so as to be introduced easily between the lids and the eyes. The eye should thoroughly be cleaned after douching with sterilized swab sticks soaked in picric acid lotion (½ gr. to ℥i); the lids being drawn gently apart when this is done.

The greatest care should be taken during douching and cleaning with swab sticks as abrasions are easily produced even by wool swabs not to speak of spout and that is why we need

flattened spout and not a round one. These abrasions soon become very dangerous ulcers.

If the swelling is great and does not even permit the introduction of the nozzle inside the palpebral fissure then it must be fully widened by a section made with a pair of scissors, having blunt head, at the external canthus (Temporary canthotomy). This serves very useful purposes. It allows a free drainage for the discharge and as the palpebral fissure gets enlarged so the introduction of the spout becomes easy. The douching of the eyes should be done four times a day and in severe cases it may be done even two-hourly but with care and according to circumstances. Irrigation should not be done too frequently as it interferes with the nutrition of the cornea; when the cornea is involved we should do it very cautiously.

In the early stage ice compresses may be used every half hour with benefit but in later stages it does no good. Then we have to seek help of our good old friend "Hot fomentation". It should be done every hour. It causes improvement in nutrition by stimulating the flow of blood to the part.

The palpebral conjunctiva should thoroughly be painted with silver nitrate (10 gr. to ℥i) on everted lids and then should be brushed thoroughly after washing it with normal saline lotion. It should be done when there is profuse purulent discharge. This method acts very nicely as it scrapes off the outer-most layer of the conjunctiva which entangles the organisms and so with the white precipitate hundreds of organisms are taken out and it also stops the discharge. But it should be used very carefully as it causes necrosis of the conjunctival tissue. Therefore we should, at the same time, do fomentation also which will stimulate its nourishment. This lessens discharge and relieves swelling but there may be pain which may be assuaged by applying leeches (6 to 10 in number) to the temple or raising blister. The application of brush should not be begun before the lids have become soft and the swelling partially subsided. When there is severe swelling and the lids are tense put only silver nitrate (gr. 2 to ℥i).

When it reaches the third stage of chronic inflammatory condition some physicians recommend application of copper sulphate and lapis divinus and some advocate the use of silver nitrate but in my practice I found boric acid powder rubbed thoroughly over the everted lid very useful. The blue stone and silver nitrate both are not safe to use when there are ulcers in the cornea and moreover they cause cicatrization of the conjunctival tissue. According to May and Worth glycerole of tannin (5 to 10 per cent.) or alum sticks act nicely.

When the swelling and chemosis subside and we find there are ulcers in the cornea we treat them just like a case of corneal ulcers. First washing it with normal saline lotion, then drop atropine lotion 1 per cent. and acriflavin lotion 1 in 5,000. After this dust zeroform on the ulcers. Do not bandage the eye as the discharge will collect and cause more harm than good. If the ulcers are very obstinate cauterize them with Wordsworth's steel cautery or carbolize them with carbolic acid and then wash them with spirit.

In case panophthalmitis occurs the above treatment should be continued with leeches and hourly hot fomentation. If these treatments do not answer well, crucial incision should be applied on the cornea and all the purulent discharges washed out. If the chemosis still remains, scarification should be done. But in all cases atropine and acriflavin drop and zeroform dust should be continued. If all fail then the last source is to enucleate the affected eye so that sound eye may be saved from sympathetic ophthalmia. But in all cases the sound eye should be very carefully watched. In cases of staphyloma paracentasis may be done.

(*b*) *General treatment.*—Patient should be given perfect rest and should be confined to bed. In cases of constipation purgatives may be given; the best of all is to give soda bicarb gr. x and calomel gr. iv at bed and followed by the saline mixture in the morning.

Saline mixture :—

Mag Sulph	℥ii
Mag carb levis	gr. 60
Soda Sulph	gr. xx
Tr. hyoscyami	m x
Aquae menthæpip	ad ℥i

Mft. mist. Such 2 doses.

Sig. one to be given at 6 A.M. and the other at 8 A.M.

If there is fever he may be given—

℞

Spt. ammonia aromat	m xx
Liqr ammon accet	℥i
Spt. Aetheris Nitrosi	m xv
Pot. Citras	gr x
Tr. Card Co	m xx
Aqua chloroformi	ad ℥i

Mft. mist. Such 4 doses.

Sig. Every six hours.

When there is no fever he may be given during the whole period of illness the following mixture.—

℞

Ferri et Quinine Citras	gr iv
Acid Nitro Hydroch dil	m x
Liqr Ammon Accet	℥i
Tr. Nux Vom	m vii
Liqr Arsenicalis Hydro	m ii
Ext. Cascara Sag Liqd	℥ i
Aqua	ad ℥i

Mft. mist. Send such 12 doses. Sig. B. D. P. C.

For severe headache and other pain he may be given

Aspirn	gr iv
Caffene citras	gr ii

Mft. Powder. Send such 3 powders.

Sig. T. D. S. If by one powder patient gets relieved the 2nd or the 3rd powder should not be given.

For sleep.- Tinct Chloraformiet morphia in X ms, doses; for pain all over the body, soda salicylas gr. X may be given with better results.

Injection of 5 cc. Sterile goat's milk over the buttock (intramuscularly) acts well. It lessens the discharge and helps in healing the ulcers rapidly. Injection of autogenous vaccine and phylacogens gonorrhœa may prove very useful but best of all is gonorrhœal vaccine combined.

Gonorrhoeal ophthalmia by metastasis.—It generally occurs in adults more in males than in females and is said to be from 10 to 12 times as frequent as the non-metastatic form (*Fuchs*). The cause may be some internal focii *in* the body itself such as gonorrhœal arthritis or iritis etc. which remain latent and under favourable circumstances make their appearance outside. It is probably due to endogenous infection from gonococci in the blood and not due to their free toxins. It is as a rule mild and affects both the eyes at a time and is occasionally accompanied by iritis. The discharge is slight and mucoid. The attacks last from 1 to 7 weeks but usually 2 weeks and relapses may occur. It is frequently complicated by keratitis, usually bilateral and symmetrical with multiple superficial infiltrates or by irido-cyclitis.

"Saint-Yves appears to have been the first to speak of gonorrhœal ophthalmia from metastasis. His account of it is very short. He describes the conjunctiva as becoming hard and fleshy, the disease having commenced by an abundant discharge of white and yellowish matters. He states that, in most cases, the ophthalmia began two days after the commencement of the gonorrhœa; the later discharge having at the period suddenly ceased, and thus caused a metastasis to the eye. He recommends blood letting, mercurial purgatives and warm bath. As local applications he advises brandy and water and a decoction of rosemary, sage, hyssop and roses in red wine" (*Mackenzie*).

Treatment.—should be done just like that of acute blennorrhoea caused by inoculation; but the injection treatment should certainly be done. Mackenzie recommends the restoration of the suppressed discharge from the urethra by introducing a bougie into the urethra covered with the discharge from the eye or gonorrhœal matter from another subject.

3. Gonorrhoeal ophthalmia without inoculation or metastasis—Various authors have related cases of ophthalmia occurring in individuals, who, either at the time when the ophthalmia attacked them, or a short time before its attack, had been affected with gonorrhœa. An alternation also has been observed by these authors between the two diseases; that is to say, when gonorrhœa came, ophthalmia retired, and vice versa. The conclusion drawn from such cases has been, that a relation exists between the two diseases, and that they are convertible the one into the other, without being metastatic. None of the authors who has described the cases to which I now refer, has explicitly attributed the production of the ophthalmia in question to the influence of nervous sympathy; and yet, if we throw inoculation and metastasis aside, there appears to be no other means by which the diseases of remote organs can be connected, except by nervous communication. The facts recorded upon the subject are valuable, whatever opinion we may form of the reasonings of those by whom they are narrated.

Swediaur states that a young man in London came to consult him for an ophthalmia. After he had tried the best remedies, internal and external that he knew of for an ophthalmia, without effect, the patient left him. He heard nothing more of him for two months, when he returned to him with gonorrhœa. During his absence he had consulted several practitioners on account of his ophthalmia, but with no better success than before; but having caught a gonorrhœa eight days before returning to Swediaur, he had begun to feel his eyes better from the third day of the discharge. The ophthalmia had continued to diminish from day to day, and he was now quite cured of it. Swediaur asked him if he ever had had gonorrhœa previous to the attack of ophthalmia. He said he had had it. Sometime before he came to consult him first about his eyes; he further said that he had suffered much, and

for a long time with it, but that at last the discharge had disappeared; and that he had not mentioned it, as he had not supposed there was any connection between that gonorrhoea and the complaint in his eyes, which had come only several weeks after.

Swediaur tells us, that this fact was too striking a lesson for him ever to forget it; and that he had never afterwards failed, in similar cases of ophthalmia, to ask the patient if he had not previously had gonorrhoea, and if it had been properly treated and cured. He described the ophthalmia in cases of this sort, as a chronic inflammation of the eyes, and specially of the eye-lids, attended very often with little ulcers of the sebaceous glands, and with an oozing of thick yellowish matter. In all such cases, specially when the patients told him that they had tried many internal and external remedies for the ophthalmia, he did not hesitate to advise the use of bougies for a couple of hours a day, as the surest and speediest way of curing the ophthalmia; and he tells us, that he had the satisfaction of seeing most of such cases cured even without any other external application. "*Mackenzie*".

OPHTHALMIA NEONATORUM

Synonyms.—Infantile purulent conjunctivitis; ophthalmia neonatorum gonorrhoeica.

Definition.—It is an acute purulent conjunctivitis occurring in new born children, presenting similar symptoms, complications and course and requiring the same treatment, as in the gonorrhoeal ophthalmia of adults. According to Parsons it is responsible for 50 per cent. of blind children and about 7 to 8 per cent. of all blind people. It is 8 per cent. in U.S.A. (*de Schweinitz.*)

Etiology.—The real cause of this disease is the infection of gonococci. During parturition when the child passes through vagina his or her eye lids are covered with the secretion contained in the latter, and this either enters into the conjunctival sac through the palpebral fissure or when the child first opens his or her eyes. Sometimes it occurs subsequent to the birth of the child, through infection from sponges, napkins, towels or the fingers of the nurses, which have been in contact with the genitals of the mother. It may occur with a child who sleeps with his or her mother who is suffering from gonorrhoea or the child may be infected by another child who has already got the infection. These all happen when there is a deficiency of cleanliness. Fæcal matter may also act as a cause due to the presence of B. coli in it. Sometimes ophthalmia occurs due to other pyogenic germs such as streptococci and staphylococci etc., but they do not cause ophthalmia neonatorum. When they are the cause the

symptoms are very mild and rarely there is any involvement of the cornea. The prognosis is always favourable in such cases.

Symptoms. The symptoms are all the same as are to be found in a case of gonorrhoeal ophthalmia of adults *viz*:—

1. Intense swelling of the lids and conjunctivae.
2. Echemosis of the bulbar conjunctiva.
3. Conjunctivae are bright red, tense, hot and tender.
4. Cornea hazy and is as a crater like pit.
5. Smarting pain of the eye.
6. Severe purulent discharge. Pus is thick in consistence and yellow in colour, but in the beginning it is bloody.
7. Constipation, fever, cries all day and night and restlessness.

After sometime the severe symptoms subside, the lids become softer and more easily everted, conjunctivae become puckered and velvety and intensely congested due to blood stasis. There is free discharge of pus, serum and often blood. In some cases a false membrane forms, so that the case resembles a membranous conjunctivitis (*Parsons*).

Course—The disease generally appears within the first three days of the birth. If it is delayed up to the sixth day then probably it is not true ophthalmia neonatorum. It is very rarely present at birth. It never occurs within the uterus, but one or two cases have been recorded. Both eyes are usually affected, one more, the other less. Any watery discharge within the first week of birth should be looked upon with suspicion as at that time normally no secretion of lachrymal glands begin. The child's eyes should be carefully observed. If the case is treated properly it takes only a couple of weeks for complete recovery.

Complications.—Complications of this disease are all like that of acute blennorrhoea of adults viz. involvement of cornea, ulcers and opacity of the cornea, keratitis and even panophthalmitis." There is great risk of corneal ulceration in ophthalmia neonatorum, especially, as is usually the case, when it is due to the gonococcus, which has the power of invading intact epithelium. The slightest haziness of the cornea should be viewed with apprehension. Often the cornea is already ulcerated, and not infrequently perforated, when the child comes under observation. Ulceration usually occurs over an oval area just below the centre of the cornea, corresponding with the position of the lid margins when the eyes are closed, and, consequently, rotated somewhat upwards. More rarely oval marginal ulcers are formed as in the gonorrhoeal conjunctivitis of adults, or the ulceration may

be central. The ulcers extend rapidly, both superficially and in depth; largely owing to lymph stasis due to strangulation of the nutrient vessels". "Perforation is usually signalised by a black spot or area in the ulcer, caused by protrusion of the iris. Sometimes perforation is sudden, a large part of the iris prolapses, and the lens may be extruded. In some cases there is a black hole in the cornea, filled with clear vitreous "(*Parsons*)".

If the ulcers of the cornea heal without perforation the opacity formed clears away earlier in babies than in adults. If there is perforation it is followed by anterior synechiæ adherent leucoma, partial or total anterior staphyloma and anterior capsular cataract etc. Ophthalmia neonatorum is the commonest cause of anterior staphyloma (*Parsons*). Vision may or may not be completely destroyed but if it is partially destroyed on account of corneal opacity nystagmus develops. It becomes evident after long time. Nystagmus occurs due to the interference in the development of muscular fixation by this disease. This muscular fixation occurs in the first week of life and ophthalmia neonatorum also appears in the first week; hence nystagmus.

Prognosis. It depends upon the degree of infection. It is generally favourable.

Diagnosis. The disease may simulate other kinds of ophthalmia but the chief diagnostic point is the history of the mother and its appearance within the first four days of life. Microscopic and cultural examination will disclose the germs which are responsible for the disease.

Treatment. The treatment consists of careful washing of the eye with luke-warm sterilized boric lotion or normal saline solution or potassium chlorate lotion (gr. x to $\frac{\text{ʒ}}{\text{ʒ}}$).

This should be done at least four times a day. Silver nitrate lotion grs. 3 to $\frac{\text{ʒ}}{\text{ʒ}}$i should be dropped into both the eyes. If this fails, silver nitrate lotion grs. X to $\frac{\text{ʒ}}{\text{ʒ}}$ should be applied and this application should be continued until the cure is complete, as otherwise disease may occur to a moderate degree. When the cornea is hazy atropine sulphate lotion gr ½ to $\frac{\text{ʒ}}{\text{ʒ}}$ may be dropped into both the eyes. Boric ointment (sterilized) may be used to prevent sticking of lids. Antigonococci Vaccine or phylocogen may be used. Argyrol or protargol may be used with benefit provided they are of high percentage. Rest of the treatment is like that of gonorrhoeal ophthalmia of adults. The treatment should be directed according to the circumstances and conditions. Hot fomentation should surely be done. Ice compresses should not be done as cold causes harm to the cornea. Special care should

be taken when separating the lids as even the slightest pressure over the eye causes perforation and sometimes even lens comes out with vitreous. Hence we should try to do as follows — "The surgeon sits facing a nurse, who holds the child on her lap. The baby's head is placed between the surgeon's knees; its body is on the nurse's lap. She holds the child's hands against its body, thus keeping them out of the way, and at the same time steadying the child. If, as is often the case, there is blepharospasm, eversion of the lids is extremely easy; indeed, it becomes troublesome when we wish to examine the cornea. Here the spasm of the orbicularis fixes the lids against the globe, and the slightest attempt to draw the lids apart causes both to become everted. Here place the left index finger vertically upon the lid while the patient is looking towards his feet. Seize the lashes with right index and thumb, and rotate the lid around the tip of the left index. "*Parsons.*"

Prophylactic treatment. Crede's Method. As soon as the child is born his or her closed lids should thoroughly be washed with sterilized luke warm boric lotion ʒi to a pint and completely dried with clean cotton. The lids are then separated and 1 per cent silver nitrate lotion should be dropped into both the eyes. Since this method has come into practice the number of blind due to this disease has decreased to nearly nil.

It is no new method specially for Indians as in our system of midwifery, which is some one thousand years old, it is clearly written that as soon as the child is born his or her eyes should thoroughly be washed with lotus honey lotion and then dried with perfectly clean white soft cloth. Unfortunately we Indians care little of our own things and that is why we see today the largest number of blinds in India. The cause is evident viz., ignorance of our indigenous system of midwifery, poverty &c. The eyes of a suspected case should carefully be observed.

Lastly I want to make an appeal to those who are interested in nation-building to take a census of blind people, male and female and try to investigate the cause. I have already started this and you will be surprised to know that out of 560 blind people whom I questioned I found that 304 were blind from their infancy whom they called born blind or *Soor Das* in vernacular. This is due to nothing else but to that heart breaking factor which we call poverty. The State has got, at present no means to prevent this. Hence we should try our selves to do what the people of other countries have done. We should organise an All-India Anti-Blind League and try to work as honestly as

we can. I should be glad if our respected editor Dr. U. Rama Rao takes this matter into his own hands.

BRIEF HISTORY OF MY SIX CASES—

No. I. *Name* — N. Khan, *age*—36 years.
Caste — Mohd. Male *Occupation*—Service.

Previous history — Suffered from gonorrhoea and syphilis some three years back.

Present history — Some three days ago he felt a smarting pain in both his eyes. Since then the pain went on increasing till it reached the present condition.

Present symptoms.—Lids enormously swollen, tender, hot and tense. The lids cannot be separated. There is watery discharge which is dull-red in colour. Patient complained of severe pain in the eyes and head. Constipation and fever present.

Result.—The eyes cured completely within three weeks but there was dimness of vision. His R.V. = $\frac{6}{12}$ with glass it became $\frac{6}{6}$.

II. *Name.*—Jhandoo *Age* 26 years.

Caste.—Hindu, *Occupation*—Barber.

Previous history.—Has suffered from gonorrhoea one year back but the disease not yet cured. Still purulent discharge coming from the urethra.

Present history.—Five days ago he went to a distant place by rail. When he returned home he began to feel in the right eye as if some particles of coal were moving about. He went to several neighbours and showed them his eye. All told him that there was nothing, and that he should apply lime on the right temple and wash his eye with trifales water. This he did but the condition went from bad to worse. He came to the hospital some five days after the disease had commenced. When I saw the case I found the lids swollen and bulbar conjunctivae chemosed, cornea hazy and lying in a crater like pit. Severe headache. There was slight temperature also. There was free discharge of pus.

Result. The disease lasted for two months. It was completely cured without any defect. His R.V. = $\frac{6}{6}$ without glasses, $\frac{6}{6}$ with glasses.

III. *Name.*—Bai *Age* 20 years,

Caste.—Bania, Female, *Occupation*—nil.

Previous history.—Gives no particular history.

Family history.— Her husband recently suffered from gonorrhoea.

Present history.—One morning her menstrual discharges began. In the evening she felt much inconvenience in her right eye. Only within the night the eye became swollen and there was free discharge of pus. She complained of severe pain in the joints, constipation, malaise and fever.

Present symptoms.—Intense swelling of the lids, conjunctivae red, and echemosed. Lids were tense, hot, tender and were not separable. There was thick purulent discharge.

She came to the hospital only for four days. During this period she got some relief but as her husband did not want that his wife should attend Hospital, she discontinued attending out door. After a fortnight she again visited the hospital with fully developed panophthalmitis. I treated the case very carefully and she was relieved after 2 months of her illness losing only one eye. All the time I watched the other eye very cautiously to prevent the beginning of sympathetic ophthalmia.

IV. *Name.*—Rahima, *Age*—16 years.

Caste.—Mohd. Male, *Occupation*—Bidiwalla.

Previous history.—Suffering from gonorrhoea for the last 3 months.

Present history.—For the last two days he felt a sandy feeling in his right eye. Only the previous evening his eyes were red and watery but the right eye was affected more. Within the night he got this intense swelling of lids which were hot, tender and tense. On examination I found the bulbar conjunctiva intensely swollen and red and there was a free discharge. The cornea was hazy and was seen lying in a pit.

Result.—He was cured but there were ulcers three in number at 8 o'clock which were healing when he left my treatment. Since then I did not hear anything of him.

V. *Name.*—Goovda, *Age*—40 years.

Caste.—Mohd. Male, *Occupation*—Butcher.

Previous history.—Some 5 years back he suffered from Gonorrhoea,

Present History.—Since a week he felt some inconvenience in both the eyes. Later the trouble had increased and the patient complained of pain and swelling of the eyes. Cornea hazy and bulbar conjunctivae echemosed. He attended the hospital for two days only, then stopped coming, but after a week when he again came I found big central ulcers in both eyes. I treated them satisfactorily. The ulcers healed up leaving behind opacity which was not curable though I tried for six months.

Result, Large opacity in centre in both eyes.

VI. *Name.*—Abdullah *Age* 35 years.

Caste.—Mohd. Male, *Occupation*—driver.

Previous history.—Gave no history of any venereal disease.

Present history.—Some four days back he was driving his bus from Mathura to Agra when he felt some trouble in his left eye. He came to the hospital. Here the case was diagnosed as that of ordinary conjunctivitis but on the third day when by chance I saw the case and found it to be very much swollen. The lids were hot, tender and tense, bulbar conjunctiva echemosed and cornea was seen down in a pit. There was purulent discharge. He complained of severe pain in the eye and head. Slight fever and constipation present. Cornea was also ulcerated. Ulcers were on the sclero corneal margin. I suspected the case to be one of gonorrhoeal ophthalmia and treated him accordingly. I sent the discharge as usual for microscopic and cultural examination. The report said that gonococci were present in abundance. I asked him to show his penis but he refused but when I saw the pathological report I insisted on his showing me his penis. I saw it and squeezed out some pus which after examination appeared to be due to gonococci.

Result. He developed staphyloma anterior with opacity cornea central. Vision nearly nil.

SURGICAL TREATMENT OF VERTIGO AND TINNITUS BY OPENING THE SACCUS ENDOLYMPHATICUS

BY

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THE saccus endolymphaticus lying on the posterior aspect of the petrous portion of the temporal bone in a depression which I have called "the fossa endolymphatica," constitutes in reality an intracranial extension of the labyrinth. The saccus lies in a space formed in the dura mater which divides into two layers, the antero-inferior attached to the petrous bone and the postero-superior in relation to the arachnoid and the cerebellum. The lateral sinus is the large blood vessel which skirts half of the outer circumference and at this level is separated from the saccus only by connective tissue. The saccus itself is in direct relation to the membranous utricule and saccule through the ductus endolymphaticus and contains a clear endolymphatic fluid.

In October 1922, I presented before the International Congress of Otology some of my experiments on fish, endeavoring to prove

the importance of the endolymphatic organ in the physiology of the internal ear. Since then, additional researches have confirmed these earlier results, and at present I believe that the function of the saccus endolymphaticus is no longer a matter of doubt.

In man, in whom the anatomic conditions are strikingly different and in whom one can rely only on physiology and pathologic anatomy for conclusions, there is justification for believing that the saccus, by its location between the layers of the dura, is influenced constantly through pressure from the subarachnoid spaces. Modification of tension of the cerebrospinal fluid should, therefore, be able to disturb the normal function of the labyrinth. This question had begun to occupy the attention of some investigators and in January, 1925, Georgio Ferreri published in "a Revista Oto-neuro-Oftalmologica" the result of his work on the action of experimental hyperpressure of the spinal fluid on the labyrinth. In June, 1926, following the results which I had obtained on fish, W.J.Mc. Nally, in the Laboratory of Pharmacy of The University Rijki at Utrecht, undertook a series of experiments on rabbits, in which he produced increasing and lessened pressure on the saccus endolymphaticus. When the pressure on the saccus did not disclose any labyrinthine disturbance, the opening of the saccus allowing the endolymph to escape produced unfavourable results and the lessening of tonus on the limbs of the same side.

A phenomenon superimposed on the lowering of tonus of the homolateral limbs, which, as Magnus and de Kleyn proved, is produced after the opening of the membranous labyrinth after the experiments of Arndt, is caused after a section of the eighth cranial nerve. These admitted facts allow one to understand the importance of the modification of pressure either of intracranial origin, that is to say, extralabyrinthine or endolabyrinthine, that may support the saccus endolymphaticus, and the results that will follow its opening. In the first place, the saccus may be compressed by the pathologic changes in an adjacent organ, lateral sinus or meninges in the cerebellum. The increasing pressure given through the saccus endolymphaticus and the membranous labyrinth in the petrous bone can provoke the development of the meniere syndrome-vertigo, deafness and tinnitus. Thus it appears as logical to blame the saccus endolymphaticus as to blame the vestibular nucleus in these symptoms arising in the course of an increased intra-cranial pressure, whatever may be their aural source.

In the second place, the increase of intralabyrinthine pressure may have an endolabyrinthine cause, and long ago otologists called attention to the existence of serous labyrinthitis. The increase of

endolymphatic fluid produces on the nervous mechanism in the cochlea and the vestibular nerve endings functional disturbances which bring about the development of the meniere triad, thus constituting a true "auricular glaucoma".

More than one analogy exists between ocular hypertension and endolabyrinthine hypertension of serous origin. In one case as well as the other the phenomenon is more often the result of a crisis of localized hyperpressure, appearing in persons with high tension or hyperexcitable sympathetic systems. As in the glaucoma, the ophthalmologist punctures the cornea to relieve the intra-ocular hypertension which is capable of destroying for ever the vision of the eye, so, in continuing the comparison, it seems logical in some cases of serous labyrinthitis, in which medical treatment has failed, to make a decompression of the internal ear in order to relieve intralabyrinthine pressure.

The membranous labyrinth, protected in a casing of the bony capsule of the labyrinth, from which it is separated by the perilymphatic spaces, is practically inaccessible. At one point only it is vulnerable. This is through the endolymphatic saccule, place in the fossa which bears its name, on the posterior surface of the petrous bone. At this point a decompression can be made when hypertension exists. Thus the otologist has been presented with new procedure of surgical therapeutics in cases in which one might suspect the existence of a serous labyrinthitis or in which an intracranial hypertension of whatever origin produces a violent reaction within the labyrinth.

OPERATIVE TECHNIC

My operation consists first in reaching the fossa endolymphaticus and locating the saccus. The exact knowledge of the relation of the fossa endolymphaticus is indispensable. One must remember that situated on a level of the posterior aspect of the petrous bone is a triangular fossa at the superior internal angle of which is the opening of the aqueductus vestibuli, and that this is in relation externally to the lateral sinus, which in its sigmoid curvature takes a turn to enter the bulb on the level of the outer part of the posterior lacertus foramen.

Therefore, it is most feasible to reach the fossa endolymphaticus in its external third, the lateral sinus being, in fact, the invaluable land mark. On the other hand, the fossa extends forward 5 mm. to the vertical part of the aqueductus fallopi. One will reach the fossa, therefore, by starting from the interior of the border of the lateral sinus and remaining on the level of the interior of the sinufacial zone. In a word, it will be necessary to search for the saccus endolymphaticus from the mastoid in the

area of the triangle formed by a line extending to the lower surface of the antrum above, by the aqueductus fallopi in front and by the lateral sinus backward.

First step.—Incision is made through the periosteum on the level of the retro-auricular groove. The surface of the mastoid is exposed, and the location of the spine of Henle and the external petrosquamosal suture are noted.

Second step.—The mastoid is trephined on the level of a square of approach situated lower down than that of the classic opening for mastoiditis. The first stroke of the gouge is made on a horizontal line passing under the spine of Henle; the second anteriorly on a vertical line placed 3 mm. behind the posterior end of the external auditory meatus, and the third horizontal at 1 cm. below the first. The very first stroke with the gouge is made perpendicular to the surface of the bone; for the fourth, on the contrary, the instrument is held obliquely to the surface of the bone and 1 cm. behind the second stroke; thus, in scooping out the bone, one finds in the depths the lateral sinus, which constitutes the landmark for the operation on the saccus. This square for approach aims to reach the lateral sinus without opening the antrum, thus keeping the operation as aseptic as possible, without communications with the middle ear.

Third step.—The bony wall of the sinus being exposed and the internal part taken away, with a blunt elevator one detaches, as delicately as possible, the dura that covers the posterior surface of the petrous bone, inclining inwardly and slightly upward to a distance of about 3 or 4 mm. A dura protector is then put in place for it is now essential to separate with a small chisel the bony region which represents the most outward part of the fossa endolymphaticus. One should remember at this time that the aqueductus fallopi and the facial nerve could be injured by an unlucky stroke of the chisel. After removing this bony region, one incises the dura mater, inclining always inwardly and slightly above, until the zone of adherence of the dura and the bone and a slight bony depression are reached. The level of the superior internal part of the fossa has now been reached at the exact point at which the aqueductus vestibuli begins.

Fourth step.—The petrous wall of the saccus endolymphaticus has now been freed by the removal of the greater part of the fossa endolymphatica. With the help of a fine needle mounted on a Luer syringe, an exploratory puncture of the saccus in contact with the zone of adherence is made. The operator feels perfectly the sensation of penetration in the little cavity of the saccus. Then with a paracentesis knife, he makes an incision of 2 or

3 mm. at most in the saccus. One or two drops of limpid water flow from the opening.

When the operation is completed, one sutures the retroauricular wound, making sure of slight drainage with a bit of gauze in case of considerable bleeding in the course of the operation on the bone. I insist more particulary on this detail of technique: that the puncture, that is, the incision of the saccus should be made as far inside as possible, near the zone of adherence.

One must remember that the saccus occasionally atrophies in old age and may be reached only at its juxtacanalicular junction. In making the incision far from the zone of adherence one would risk incising the meninges, and miss the saccus. By operating at the contact of the bony wall which constitutes the supero-internal part of the fossa, one is sure to reach the saccus, even if it is much atrophied.

COMMENT

This operation, though a delicate procedure, is comparatively simple. To me it is the method of selection for reaching the saccus endolymphaticus, and, I believe, it opens an era full of promise for the surgical treatment of a great number of labyrinthine diseases of which two symptoms are, particularly distressing for the patient.

SOME COMMON DISEASES OF THE EAR

BY

S. V. NATHAN, L.M.P., MADRAS.

Introductory.—Diseases of the Ear are fairly common in general practice and it is, many times, impossible for all the patients to seek the aid of a specialist. Hence it becomes necessary for the general practitioner to deal with the commoner ailments that affect this organ, and only send difficult and complicated cases to the specialist.

In order to be able to do so effectively it is very necessary that the practitioner should possess certain instruments special to this branch of the medical science. These are few in number, cheap for the average pocket, and easy to handle with very little experience. Now I shall enumerate them with only a very short description of some of them.

Equipment.—(1) A Laryngoscope head mirror. This consists of a concave mirror with a central hole, and jointed at its circumference to an adjustable head-band by means of a ball and socket joint.

(2) A set of ear specula (Wilde's).
(3) A Tuning fork.
(4) An aural forceps.
(5) An ear syringe (of about 4 ounces capacity).
(6) A kidney tray.

Illumination.—The source of illumination need not necessarily be an electric lamp; but any bright kerosine-oil power-lamp or petromax lamp would do. Sometimes bright day-light from a well-placed window is quite efficient and enough at least for diagnostic purposes; but differences in the illumination do occur and hence one should educate oneself with the appearances of the interior of the ear under both kinds of illumination.

Classification.—From the clinical point of view, diseases of the ear could be divided into three main classes, corresponding to the main symptoms complained of. These main symptoms are pain, discharge, and tinnitus. A patient may complain of many symptoms but yet the chief one would be one of the above mentioned symptoms or a combination of any two or any three of them. But the common ailments, that have to be faced by the general practitioner, present only one or two of them. Deafness to a greater or lesser degree is always associated with all the diseases of the ear.

I. PAIN IN THE EAR

Pain in the ear.—Pain in the ear is the commonest symptom (in fact the first symptom in many cases) complained of, and hence we shall consider it first. Many diseases cause pain in the ear, but the one most frequently met with in practice is a very simple one viz:—

WAX IN THE EAR (INCLUDING OTOLITH)

History.—The history of a case of wax in the ear is almost typical and is something like the following. To begin with, the patient usually experiences a sort of dullness in the ear and deafness to low notes but he overlooks them as nothing. Sometimes he gets a curious sort of sensation in his ear, and then he puts in a piece of stick and makes a churning movement with it. The sensation is allayed and he forgets all about it soon after. Some months or years later he perceives that the dullness in the ear is becoming worse and suddenly one day—usually at night he awakes with intense pain in the ear. The pain gradually and rapidly becomes worse and it may become so severe as not to allow him to sleep or attend to his daily duties. Then it is that he approaches the medical man. He would often-times tell the doctor that he has a boil in his ear and that it is causing him a good deal of

result from many short sittings; but a prolonged single sitting to complete the operation is very trying and exhausting both to the patient and the doctor, with no good result at the end. The wise saying "patience has its reward" and "the slow but steady wins the race", may be advantageously kept in mind in dealing with these cases.

After-treatment.—After the removal of the mass, however carefully done, there would be a little amount of bleeding because of the inflamed condition of the lining of the ear. This is very trivial and stops immediately it is washed out by means of a further syringeful of lotion and the application with a swab of glycerinum acid carbolic 5%. The painting with the latter glycerine should be continued for a few days afterwards, for this acts both as a healing balm to the inflamed area and as an antiseptic local anodyne.

The next common disease of the ear in which the chief symptom is pain in the ear is:—

OTITIS MEDIA.

Anatomy.—Otitis Media, as the name suggests, is inflammation of the middle ear and of its lining membrane. The inflammation is a result of infection and a perusal of the anatomy of the middle ear readily discovers its source. The middle ear is an osseo-membranous chamber situated in the substance of the Temporal bone, bounded by bony surfaces on all sides except one where the membrane Tympani is inter-posed. This cavity communicates with the exterior i. e., with the atmospheric air, through the Eustachian or the auditory tube which opens internally on the anterior wall of the tympanic cavity and externally into the nasopharynx on a level just above to the posterior end of the floor of the nasal cavity. This tube is lined by mucous membrane which is directly continuous with that of the nasopharynx on one side and that of the middle ear on the other. Hence we find that any infection that affects the mucous membrane of the nasopharynx (which being exposed to the atmosphere is very susceptible to infection) would naturally extend via the Eustachian tube into the middle ear.

On the surface of the mucous membrane of the nasopharynx there is always a layer of dust and bacteria derived from the air breathed in constantly; but in a healthy mucous membrane they are unable to do any havoc. However when the mucous membrane becomes congested on any account (e.g., by exposure to cold, irritating or foul atmosphere) the bacteria on the surface

invade the mucous membrane and gradually extends up the Eustachian canal into the ear. As the mucous membrane of this canal gets infected it becomes inflamed, swollen and engorged so that the fine tube becomes blocked and a sensation of blocking in the ear is felt by the patient as the first symptom. Thus cold accompanied by a blocking sensation in the ear, perhaps slight malaise and fever, is the common history of a case of Otitis Media.

Infection.—Now the infected mucous membrane of the middle ear becomes also swollen, congested and painful and after a certain time there is an exudation of serum into the middle ear. This serum could not get an exit on account of the closed auditory tube and hence collects in the ear itself. The inflamed condition of the mucous membrane retards any absorption of the fluid and hence the accumulation increases day by day causing the Membrana Tympani to bulge out. Thus the tension increases day by day and the pain correspondingly more boring and persistent. This condition progresses until the drum could stand the tension no longer and gives way suddenly to the intense relief of the patient. The exudate continues to discharge itself for a few days and in favourable cases stops with healing of the wound in the membrane and the restoration of hearing. But in the majority of cases this much-wished-for termination does not occur. Infection takes place from the external meatus as well as the atmosphere and the serous exudate becomes purulent and chronic Otorrhoea is the result. Then the chief symptom is discharge and not pain, and hence we reserve its consideration to a later stage.

Examination.—The examination of a case of this kind calls for not only that of the ear but also of its allied organs viz., the nose and the throat. Under direct illumination and with the aid of an ear-speculum the membrana Tympani is examined. Often-times there is certain amount of cerumen in the ear and this has to be syringed out before further examination could be done. This being done, the drum is made clear by means of the light rays concentrated on to it first by the Laryngoscope Head Mirror and secondly by the conical shaped speculum.

The Membrana Tympani.—In the earliest stages the membrana Tympani is changed in colour, tending towards a pinkish colour on account of its deeper layer having been involved in the general inflammation. Then, we find the membrane slightly retracted which is made out by the dimple in its centre. This retraction is the result of absorption of the air enclosed in the now sealed cavity of the middle ear. In the stage of exudation the retraction disappears giving place to varying degrees of bulging. In very acute inflammations the membrane is red and bulging to such an extent that the details on the drum could not be made out, but

when the inflammation is of a milder degree as in catarrhal exudates, the membrane is discolored and bulges out but the bony outline of the ossicles could be faintly seen through.

The Causative lesion.—Examination of the nose and throat reveals either a Rhinitis—acute or chronic—or Pharyngitis or again Tonsils with or without Adenoids. The former two diseases are the more common causes for Otitis Media in adults, and the latter in children. If the nasopharynx is examined by an endoscope the orifice of the Eustachian canal would be found to be in a swollen condition, thus interfering with the patency of the opening.

TREATMENT OF OTITIS MEDIA IS THREE-FOLD.

1. The treatment of the causative lesion.
2. General treatment.
3. Local treatment.

1. *Treatment of the causative lesion*: The causative lesion is usually in the pharynx or nose. At present these have to be treated by inhalations of either Menthol 1% in rectified spirits, Tr. Benzoin co. Tr. Iodine. A few drops of any of the above are put into boiling water and the medicated steam inhaled through the mouth and nose, the head and the basin containing the water being completely covered over by means of a thick towel.

2. *General treatment*:—This is for pain. The pain is more due to the pent up discharge than to the imflammation itself, and hence the cure for the pain is the letting out the contents of the middle ear. But in all the early cases and in some of the later cases in which, due to any cause, surgical interference has to be delayed or has to be abandoned, pain must be relieved by other means and just as in the case of Wax in the ear, local anodyne remedies are no good. The general pain-relievers including hypodermic morphine, if necessary, have to be given as in the case of Wax in the ear.

3. *Local Treatment*:—This is divided into preparatory and curative.

Preparatory local treatment is directed to the external auditory canal, so as to keep it aseptic and thus prevent chances of secondary infection entering the middle ear when the tympanic membrane is perforated either naturally or artificially. This is done by gently syringing the external auditory canal with warm boric lotion, removing gently all wax and dirt. Then dry it and drop in or better still paint the part with 5% carbolic acid in glycerine, and keep the external auditory opening closed with a plug of cotton-wool.

The curative local treatment consists in letting out the contents of the middle ear. This is usually done by the specialist with a special instrument called the *myringatome*. But any practitioner who could make bold to do the operation could certainly undertake it without any special instrument at all. The only thing that he requires is a long flat needle such as is used for suturing the skin incision after abdominal operations. This instrument forms part of the ordinary practitioner's armamentarium and even if he has not got one, one could be obtained at a very nominal cost at any ordinary dealer in surgical instruments. The operation is a simple one but always requires a general anaesthetic, and chloroform is the best for India even if nitrous oxide or ethyl chloride is available. The patient being put under surgical anesthesia, a pencil of light rays is concentrated into the ear and the drum exposed to veiw by pulling the pinna backwards and upwards. The point of the needle is thrust in just behind and slightly above the handle of the malleus, and using the bevelled edge of the needle as a myringatome-blade make an incision in the drum running from this point downwards and backwards. The tympanic membrane, being very congested on account of the inflammation, bleeds for a time and this has to be allowed. A thin strip of gauze is gently inserted at the orifice made and an antiseptic dressing put on. The patient is to lie on the affected side to promote drainage. The dressing and decubitus has to be kept up until the wound in the drum is healed up.

If the practitioner is nervous about undertaking this operation, and if a specislist's aid could not be had, he has to trust to dry fomentations over the ear-region, and wait for Nature to do her work. Unfortunately, Nature's work in this case is rather imperfect, for the drum usually gives way in such a spot, that there is always a pocket of exudation left at the floor of the middle ear which is never completely drained and hence a liability to chronic Otorrhoea always exists. When the drum gets perforated the only thing that could be done is to prevent secondary infection by keeping the external auditory canal clean and aseptic, and to promote drainage by lying on the affected side. After some time the exudate stops and the perforation heals. But if the causative lesion in the nose or throat such as Tonsils and Adenoids is not removed, it would become chronic. Hence at the earliest opportunity the lesion must be dealt with. The above happy termination occurs only in a limited number of cases and the rest usually run on to chronic Otorrhoea.

There is yet another common disease of the ear in which pain in the ear is the most prominent and perhaps the only symptom and that is:—

OTITIS EXTERNA.

Otitis externa is the inflammation of the skin of the external auditory canal, and in the frequency of its incidence this is less common than any of the preceeding conditions. Under this head we have to consider mainly three classes of cases:—

1. A general inflammation of the skin of the external ear.
2. An abscess in the canal.
3. Furunculosis of the Canal.

Cause and symptoms--1. *General inflammation of the skin of* the canal is usually associated with prolonged presence of a mass of hard wax in the ear, or with a change of climate. Whether it be hard wax or a sudden change from a cold to a hot climate, a curious sensation is at first felt in the ear and to alleviate it the patient puts in a dirty stick or his dirty finger-nail into the ear and scrapes its wall. This allays the sensation and is pleasing to the patient. In a few days a general inflammation of the skin sets in and pain begins. The pain is dull and persistent.

Examination.—On examination it is found that the pinna is tender to the touch and the external orifice of the canal is somewhat reddened and swollen, the intensity varying in degree in different cases. The pinna could not be handled on account of the intense pain. Even slight pressure on the Tragus (*i.e.*, the triangular projection just in front of the external orifice of the ear) causes intense pain. The skin of the canal is seen to be red, oedematous, and angry looking just as the inflamed skin anywhere else.

Treatment.—First of all soak and remove the wax in the ear, and make it clean.

Syringe the ear very gently with warm, sterile, mild antiseptic lotion (*e.g.*, saturated boric acid lotion). This is very soothing to the inflamed skin and acts as a fomentation for the inflamed area. Dry the canal gently but thoroughly and paint the skin of the canal with a 5% Glycerine acid carbolic. Painting with a swab soaked in the above is better and more efficacious than putting in a few drops of the same and plugging it with cotton-wool. After painting, a piece of cotton-wool is gently inserted at the orifice of the canal and is intended not to plug the ear but to keep away dirt from the exterior.

Order dry fomentations to the ear, cheek, temple and mastoid, 4 to 6 times during the day.

Pain, if very bad, ought to be relieved by general measures even though the ear drops and fomentations would be enough in about half the number of the cases.

2. *An abscess in the canal* is just like one in any other place, and thus it presents pain, swelling, redness and tenderness.

On examination an elevated area is present on the wall of the canal varying considerably in size, sometimes being very small and sometimes so big as to occlude the lumen of the canal outright. If touched with a probe, at first it may be hard to the touch, but later when pus has formed a sense of fluctuation is felt by the probe.

Treatment is directed at first to the cleaning of the meatus. This is done as indicated already by antiseptic lotions and drops. Fomentations are given until pus forms, and when it has occurred, it is incised by a small thin scalpel. Subsequent treatment is as for an ordinary abscess anywhere else, *i.e.*, drainage by gauze strip and antiseptic dressings.

3. *Furunculosis of the external auditory canal* is the most troublesome both in pain and intractability to treatment, for it recurs again and again if only local treatment is adopted. Furunculosis in the ear occurs, as in other places, in crops of boils recurring often and often. It causes an intense amount of pain and as in the case of general inflammation of the canal, tenderness on slight pressure over the tragus is present.

Examination has to be conducted by the Head mirror and gentle handling of the pinna alone, for the speculum would cause an immense amount of pain and after all serves no purpose.

Treatment is the same as far as the local treatment is concerned. Gentle syringing with a warm, sterile, mild antiseptic lotion, drying and painting with Glycerine acid carbolic 5%, dry fomentations at 4 hourly intervals during the day, are all necessary. When the furuncles have discharged themselves, the discharge is carefully removed by Hydrogen peroxide, syringing and swabbing, and the ears kept painted with the above glycerine.

General treatment is usually done by vaccines. Staphylococcal vaccine is used and a stock vaccine usually suffices. Only in specially intractable cases auto-vaccines have to be resorted to. The dose of the vaccine must be very low at the beginning and must rise gradually. More lasting benefit is derived from the use of smaller doses than large ones. Thus a first dose of 5 to 10 millions of Staphylococci does more good than the initial 50 to 100 million dose which is usually prescribed. Hence our dosage would be 5 millions for the first injection, then increased to 10, 20, 50, 100, 150 and 200 millions. The injections are usually given twice a week, but they could be adjusted to particular need and reactions. Thus thrice a week or once a week may be the intervals chosen. After rest for a few weeks a similar course could be given, if the particular case requires it.

SUPPURATIVE INFLAMMATION OF THE ACCESSORY SINUSES OF THE NOSE

BY

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SUPPURATIVE inflammation of the accessory sinuses of the nose is a fairly common disease met with in this country, but its symptomatology and diagnosis have not been clearly understood hitherto. The pioneer in this field of research who has done a great deal to clear the thick mist hitherto surrounding sinus diseases, is Prof: Hajek, the head of the Oto-Rhino-Laryngological department of the Vienna School of Medicine. The classical work of Prof: Hajek on sinus diseases has been universally accepted as a standard work and has greatly helped the medical profession to correctly assess the value of clinical signs and symptoms present in sinusitis of the nose. The complexity of the problem is caused by the simultaneous infection of one or more or all the sinuses on the same side, the symptoms of which are often puzzling even to the most experienced. In some cases a correct diagnosis is impossible at the very first examination. It needs careful observation for some time, before one can definitely say which of the several sinuses is involved.

For clinical study, we accept Hajek's classification of the sinuses into :—

(1) An anterior group and (2) a posterior group, as it is easy to understand the physical signs and symptoms. The attachment of the middle turbinal bone to the lateral nasal wall, marks the limiting boundary of these two groups. Those sinuses that open into the hiatus semilunaris and middle meatus and which therefore lie in front of and below the middle turbinal bone, belong to the anterior group, and those that open into the superior meatus and which therefore lie above and behind the middle turbinal bone, belong to the posterior group. The anterior group comprises the Maxillary Antrum, Frontal sinus and the auterior ethmoidal cells and the posterior group consists of the posterior ethmoidal cells and the sphenoidal sinus. Except in such rare cases where both the groups are involved simultaneously, it is easy to differentiate in a majority of cases, the pathological condition involving these two groups of sinuses.

In practice, this differentiation should be made at the commencement, as it facilitates further investigation and the line of treatment to be adopted in each case.

In the inflammatory conditions of the anterior group of sinuses, the secretion is poured into the middle meatus, and will be

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seen escaping between the lateral nasal wall and the middle turbinal body, on the affected side. But in the case of the posterior group, the secretion is seen flowing over the middle turbinal into the post nasal space. Our task does not end here. The next step in the diagnosis is to find out which of the individual sinuses of the two groups is involved. This is done by a process of exclusion and also by taking into account the physical signs and symptoms peculiar to each individual sinus. We also call to our aid other recognized means of diagnosis such as "X Ray", transillumination and Escat's position." Transillumination of the maxillary antrum and frontal sinus gives one a fairly clear idea of the condition present inside and taken in conjunction with the physical signs and symptoms present, one may with confidence proceed to explore these sinuses to confirm the diagnosis, before resorting to radical surgical measures.

In Escat's position, the head is thrown forward with affected side turned up, to help the flow of pus from the maxillary antrum.

A skiagram of the skull may help us to locate pus in any of these sinuses, and their correct interpretation needs a fair amount of experience and skill, on the part of the radiologist.

Exploration of the maxillary antrum.—Frontal and sphenoidal sinuses, are easy enough to an experienced hand and their treatment is determined by the findings. By adopting this line of investigation, if the above sinuses are excluded from any inflammatory lesion, one would naturally surmise that the trouble is either in the anterior or posterior ethmoidal cells. These two groups of cells are separated from each other by a transverse partition. In the case of the anterior ethmoidal cell inflammation, the bulla ethmoidalis may be found enlarged towards the septum or downward against the uncinate process, and the secretion from them is seen escaping under the middle turbinal body. In the case of posterior ethmoidal sinusitis, the secretion is seen either in the posterior portion of the olfactory fissure, or on the top of the middle turbinate on post rhinoscopic examination with crusts and secretions in the vault of the Epi– pharynx.

The same condition is also present in sphenoidal sinusitis and their differentiation is difficult, as these groups of sinuses are frequently involved in the same inflammatory process, except by exploration of the sphenoidal sinus.

Having described the physical signs present in inflammation of the accessory sinuses of the nose as a whole, it would be instructive to discuss the symptoms present in each individual sinusitis.

(1) *Maxillary antrum* is more often singly involved than any of the other sinuses, as the source of infection from infected teeth

constitutes about 10-20 per cent. of the total cases. The teeth which give rise to antral suppuration, are the 2nd bicuspid and the 1st and 2nd molars. In the rest of the cases infection is of nasal origin, in which case, the other sinuses may be involved simultaneously. Empyema of the maxillary antrum may be either open, closed or latent. The open variety is commoner than the other two. More commonly it is unilateral, but bilateral infection is not at all rare. In the open variety, Anterior Rhinoscopy reveals streaks of pus escaping between the middle turbinal and outer nasal wall. In some cases, no subjective pain over the affected antrum or any other inconvenience is experienced, except the presence of purulent discharge and subjective fetid odour from the affected side. In others, an uncomfortable sensation over the affected side, aggravated by cold breeze, neuralgic headache coming on at a definite period in the day, making one mistake it for malarial origin, and tenderness on pressure over the canine fossa are observed. If the streak of pus is cleared with a soft cotton swab and the patient is placed in Escat's position, after a slight interval pus is again seen on the middle meatus. As this sign is common to all the sinuses of the first group, we need further investigation to differentiate the antrum from the frontal sinus and anterior ethmoidal cells. Transillumination of the antrum and frontal sinuses is very helpful. In cases of empyema of the antrum, transillumination shows an opacity under the lower eyelid in place of the luminous crescent seen normally, a non-luminous pupil and absence of the sense of light with eyes closed on the affected side, which are very characteristic. In closed empyema of the antrum when there is no escape of pus from the ostium owing to swelling of the mucous membrane around it, transillumination is an important physical sign to be depended upon. Next, the antrum is explored and suction applied to see if pus is present. Presence of pus is confirmatory of empyema of the antrum. In rare cases, opacity of the antrum in transillumination may be due to thickening of the antral walls as a congenital condition or the presence of new growths.

In arriving at a diagnosis, one should assess the value of other signs and symptoms, instead of depending on one particular sign or symptom.

In the closed variety, there is dull aching pain and tenderness on pressure over the cheek bone. Pus is not always found in the middle meatus but is occasionally discharged in large quantities relieving the pain caused by pressure. Transillumination and exploration will confirm the diagnosis.

In the latent variety there is no nasal discharge, but a previous history of nasal discharge is obtained, the patient suffers from

frequent attacks of frontal headache on the affected side, and mental depression. Irrigation of the antrum through a puncture in the inferior meatus, shows the presence of pus, though transillumination may be negative.

In frontal sinusitis, we notice unilateral nasal discharge in the middle meatus, supra-orbital pain, pain on pressure on the floor of the sinus, frontal headache on the affected side more marked in the mornings and dizziness upon stooping. Transillumination of the frontal sinus shows diminished luminosity on the affected side. Exploration of the frontal sinus and demonstration of pus on irrigation, confirms the diagnosis. Transillumination of the frontal sinus should not be depended upon entirely for diagnosis, as many anatomical abnormalities are known to exist. In some cases, frontal sinus may be very small or even absent.

Chronic Ethmoiditis is seen in two forms, viz., (1) suppurative and (2) non-suppurative.

In the suppurative variety the exudate varies from a thin watery to a thick yellow discharge, variation occurring in the same case, which is attributed to fresh colds but is really due to exacerbation of the chronic condition. The anterior cells or the posterior cells or a combination of both groups may be involved.

Suppuration of anterior cells is usually associated with frontal sinusitis. Infection of posterior cells is more frequent as they are larger in size and less amenable to aeration. A slight swelling of mucosa interferes with drainage and exact diagnostic instrumentation is rendered difficult. These cases are not disturbed by inspiratory current and form an excellent medium for microbic growth.

(2) In the non-suppurative variety, polypoid formations springing from the body of the ethmoid or the uncinate process are seen, but never from the lower border of the middle turbinate. Choanal polypi spring from the mucosa of the maxillary antrum. The anterior labyrinth is the seat of large extracellular hypertrophies, while in the posterior labyrinth the intracellular variety is the rule. In chronic cases, the entire ethmoid becomes converted into one mass of polypoid degeneration with profuse watery secretion which does not stain linen. Staphylococci infection appearing in cycles, produces thick yellow secretion.

In the case of anterior ethmoiditis, pus is present in the middle meatus with polypoid formation in the same situation but in the case of posterior ethmoiditis, purulent crusts are present in the superior meatus and in the epipharynx, dull headache is variously located in the frontal occipital and vertexial regions of the head and polypi spring from above the

middle turbinal. Middle meatus is free from pus in purely posterior ethmoiditis. Bare rough bone is felt in the superior meatus on probing. Sphenoidal sinus is found free of pus on irrigation with a cannula.

A hypertrophied and mottled appearance of the middle turbinate, is often a clue to posterior cell infection.

In sphenoidal sinusitis, there is formation of crusts in the epipharynx and post nasal "dropping." A subjective sense of odour is noticed by the patient, even in the absence of such an odour. Vertexial and occipital headache is present and the field of vision diminished. Irrigation of the sphenoidal sinus is necessary to confirm the diagnosis.

In closed empyema of the sphenoidal sinus, patient complains of intense headache at the vertex and occiput and sudden blindness on the affected side. Great mental depression and dizziness with crust formation in the olfactory fissure. The ostium of the sphenoid is obscured by the swelling of the mucosa and granulation tissue. Caries of the sinus may be detected on probing.

A skiagram of the sinuses is indispensable in all cases of sinusitis and it should be the routine practice when facilities are available as in well organized clinics.

During recent years, the influence of sinusitis on ocular lesions, has been worked out and many pathological conditions of the eye are now traced to the extension of the disease from the accessory sinuses of the nose.

The most important of these sinuses, which gave rise to ocular lesions, are the posterior ethmoidal cells and the sphenoidal sinus, though other sinuses may also contribute to them. The eyes may become involved, either by direct extension from the diseased sinuses or by way of the lymphatics and venous channels.

Many varied pathological conditions of the eye are observed, which at first sight are very puzzling. Paralysis of the extra ocular muscles, optic neuritis, retrobulbar inflammation and proptosis, keratitis, iridocyclitis etc., have been recorded. In one of my cases, paralysis of the levator palpebrae superioris of the right side was observed in a case of posterior ethmoidal cell infection, and blindness and proptosis of the right eye in another case. In all suspected cases of accessory sinus disease influencing eye lesions, the co-operation of the rhinologist with the ophthalmologist, should be sought after and no opportunity should be lost in determining the nasal origin of the ocular trouble.

The sense of smell may be lost by obstruction of the olfactory area caused by a swollen middle turbinal or polypoid growths

starting from the ethmoidal cells or even by a septum deflected in its upper half and pressing on the middle turbinate.

The middle ear may become infected along the eustachian tube from the epipharynx causing suppurative or catarrhal otitis media.

ETIOLOGY

The etiology of sinusitis may be summed up in these words, viz., micro organisms and nasal obstruction. As a general rule, all abnormal conditions of the nasal cavities which interfere with free drainage and ventilation of the air sinuses predispose to sinusitis.

A deflected septum, especially in its upper half, pressing on the middle turbinal, polypoid growths, hypertrophied middle turbinal etc., are some of the common anatomical conditions met with, in sinusitis in this country.

But in the case of maxillary antrum, septic conditions of the teeth, contribute largely to its inflammation. The air sinuses may also become involved primarily in infective fevers, such as influenza, measles, small-pox, scarlet fevers, etc., but the condition is not likely to take a chronic course, if there is no obstruction to free drainage and ventilation of the sinuses. Syphilis, tuberculosis and foreign bodies in the nose also contribute to sinusitis.

From 1927 up till the end of August 1930, 34 cases of sinusitis have been treated by me. Of these, the maxillary antrum was alone infected in 28 cases, and in one of them, the frontal sinus and anterior ethmoidal cells were also involved. The other five cases were all ethmoiditis with polypoid growths. There was no case of sphenoidal sinus inflammation, pure and simple. The record of cases treated by me from 1908 to 1920, when I was in charge of the ear, throat and nose clinic of the Victoria Hospital, is unfortunately not available for the present review.

An analysis of these 34 cases though insignificant, will be interesting. Of the 28 cases of empyema of the antrum, 15 were on the left side, 5 on the right and in 8 cases both sides were involved. No explanation is forthcoming as to why left side is more frequently infected than the right. Four of the cases were females and the rest were males. Infection in a large percentage of antrum cases was traced to diseased teeth. In a small proportion of cases, infection followed influenza,which was aggravated by nasal obstruction of some kind or other mentioned above.

Pain of varied kinds was said to be present in all antrum cases except six. Pain was present over the affected antrum only in one case. In the rest of the cases, it was referred to the side

of the head on the affected side and described as of a dull aching character, worse at night and on stooping. In a few cases pain over the forehead came on at a regular periodicity at about 10 A.M. daily and left them at 2 or 3 p.m., mimicking neuralgia of malarial origin and they have been liberally treated with quinine before coming to me. It would be somewhat difficult to differentiate the frontal pain caused by frontal sinusitis, from that of antrum inflammation, as both these conditions give rise to pain over the same region. Discharge of muco-pus was noticed escaping from underneath the middle Turbinal in all but 3 cases. In one of my recent cases, the frontal headache and transillumination test, were alone helpful to diagnose antrum trouble. The nostril was free of muco-pus at the time of examination. This condition happens in the closed variety as a rule. Except for this exception, the presence of pus between the middle turbinal and the lateral nasal wall as seen by anterior and posterior rhinoscopy, is a reliable sign when taken in conjunction with other signs and symptoms. Transillumination is also a fairly reliable test in a majority of cases, but it should not be depended upon entirely for diagnosis. In two of my cases both antra were dull on transillumination and muco-pus present in the nostrils, but on exploration and suction of the antrum, no pus was detected. In one case, although both antra were dull on transillumination, yet muco-pus was detected only in one nostril and this side only was explored and pus detected in the antrum. The other antrum was not explored. In another case, although X-ray and transillumination showed a clear shadow, yet on exploration and suction no pus was detected. Therefore in diagnosing antrum cases, one has to take into account collectively all the signs and symptoms present, instead of depending on any one sign in particular.

Frontal sinusitis was observed only in one case in the above series, in which the antrum on the same side was operated upon previously. Previous to 1927 I remember operating on a case of double frontal sinusitis in the Victoria Hospital, so this condition appears to be extremely rare in this country.

Sphenoidal sinusitis by itself is also a rare condition; I remember having treated only one case during all these 22 years of my stay in Bangalore, which occurred in a young man of 18 years. This case occurred prior to 1927. But it is commonly infected with posterior ethmoiditis. Ethmoiditis was observed in 7 cases. In two cases, the anterior group of cells was involved but the rest appeared to involve both the groups. The nasal cavities were choke-full of polypoid growths and carious bones were detected, in the region of the middle turbinal, both above and below its attachment. In one case the right levator palpebrae superioris was paralysed, and there was a drooping of the upper eyelid. In the second case vision and movement of the right eye were lost, and the eye ball was pushed out. Suppurative ethmoiditis as an independent affection was not present in this series. All these cases were mixed ones, with polypoid growth and muco-pus. A tendency chiefly noticed in these cases is the periodical exacerbation of nasal catarrh usually attributed to catching fresh cold. In all such cases a careful examination of the sinuses is imperative for affording appropriate treatment. Lots of patience and perseverance on the part of both the patient and the specialist are needed in treating this class of cases. Frequent recurrence of polypoid growth is noticed and they need removal.

Treatment consists essentially in providing free drainage and ventilation of the air sinuses in all early cases, by correcting any anatomical abnormalities present in the cavities. The importance of this procedure cannot be overstated. In many early cases treated on this line, the inflammation had subsided in a very short period. In chronic cases, the procedure adopted varies according to the sinus affected.

In the case of maxillary Antrum Empyema, the procedure usually adopted by me is to provide free drainage and ventilation of the cavity by an intra-nasal operation. The principle to be kept in mind, is to make the opening into the antrum as large and low as possible to help free drainage and to avoid its future closure by granulation tissue. This is done by me under cocaine anaesthesia in a very short time. The antrum is washed out daily with some mild antiseptic solution and the patient taught how to do it himself. In rare cases with excessive polypoid growths in the antrum, an extra-nasal operation is indicated.

In early cases of frontal sinusitis, free drainage of the sinus should be provided through the natural passage, but in all chronic cases, external operation becomes necessary. In selecting an external operation, the necessity for avoiding an ugly scar on the face should be kept in mind.

Ethmoiditis associated with polypoid growth needs careful handling. The close proximity of the eye-ball and the brain, the thinness and friability of the ethmoid and the narrow space in which to work, render the operation more tiresome and difficult. In a majority of cases, the operation is performed by me under cocaine anaesthesia. A good illumination of the field of operation is essential. All infected cells should be laid open carefully, without using excessive force. One or more sittings may be needed to

evacuate all the diseased bones and polypi. This is far better than trying to perform the radical operation in one sitting, under a general anaesthetic. Once a week the operated area should be dressed with a solution of equal parts of silver nitrate (10-20%) glycerine and warm water and the plug kept in situ for 5 hours.

Sphenoidal sinusitis needs enlarging the ostium, which is easily done with special instruments provided for the purpose after removal of the middle turbinal.

NOTES ON THE OCULAR MANIFESTATIONS OF THE AFFECTIONS OF THE PARA-NASAL SINUSES.

BY

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THE notes from which this paper is composed were made over two years ago. They were not intended for publication but for my own information for the lectures to the candidates preparing for D.O. of Bombay University. These notes were revised from time to time in order to keep them up-to-date.

Here I propose to correlate partly the anatomical relations of the para-nasal sinuses to the orbit, with special reference to their embryology and to indicate the practical application of these to the pathological conditions. In a purposely short paper such as this, it is impossible to deal fully with all the various possible lesions individually, but I will try to mention a few of the more important ones from the standpoint of how they occur, giving a bare and broad outline of the necessary treatment, at the same time avoiding dogmatism.

Anatomically and clinically, the para-nasal sinuses are conveniently divided into (1) the anterior group of sinuses and (2) the posterior group of sinuses. The anterior group of sinuses are those opening into the middle meatus of the nose under cover of the middle turbinate bone, namely, (1) maxillary antrum of Highmore, (2) frontal sinus and (3) the anterior ethmoidal cells. The posterior group of sinuses are those opening above the middle turbinate bone, either in the superior meatus of the nose or into the sphenoethmoidal recess, namely (1) posterior ethmoidal cells and (2) the sphenoidal air cells.

The maxillary antrum of Highmore exists at birth in a rudimentary form as an outgrowth from the middle meatus of the nose. The sinus gradually increases in size, extending outward into the body of the superior maxilla, reaching its adult size by 20th year.

The two antra need not be symmetrical. The sinus is pyramidal in shape. Its roof in the adult is formed by the floor of the orbit. It is traversed from behind forward by the maxillary division of the trigeminal nerve accompanied by infra orbital vessels. The inner wall or the base of the pyramid forms the outer wall of the middle and inferior meatii of the nose. The important structure traversing it is the naso-lachrymal duct. The floor is formed by the alveolar border of the maxilla. This and other walls of the antrum do not come in relation with the orbit or any other orbital structure, and therefore need not be detailed here. The natural opening of the antrum is situated near its roof into the middle meatus of the nose in the hiatus semi-lunaris, very unfavourably situated for the drainage of the cavity. The accessory opening may also be present in the memberaneous part of the wall of the middle meatus.

The frontal sinus develops soon after birth during the first year of life from the anterior ethmoidal area; the development of the cavity in the early years of life is subject to considerable variation; although the well formed cavity has been recognised between the third and the fourth year, it reaches its adult size approximately about the eighteenth year of life. Bilateral or unilateral absence of the frontal sinus has been recognised in 17% of European skulls. No record in the literature is available giving the variation of the presence or absence of frontal sinus in Indian skulls. In my clinic at the Goculdas Tejpal Hospital, we had about 400 odd heads X-rayed for one trouble or another during the last three years, and approximately about 4% of them have shown unilateral or bilateral absence of the frontal sinus. This point, however needs further investigation. The sinus on both sides may be very asymmetrical, so much so that the sinus on one side may even partly or wholly overlap its fellow of the opposite side. Such cases would give rise to bilateral or even contralateral symptoms in morbid conditions. As far as the orbit and the eyeball are concerned, the floor and the anterior wall of the sinuses may be detailed here. The floor of the frontal sinus is very thin. It forms a part of the roof of the orbit in its anterior and inner third, coming in close relationship with the pulley of the superior oblique muscle. The anterior wall is formed by the convex outer table of the frontal bone and thus comes in close relationship with the supra-orbital and the supra-trochlear nerves.

The ethmoidal air cells.—Only a few of these are present at birth. They mainly develop at the age of four years and are fully developed about the twentieth year. They play a very important role in their relation to the orbit and the eyeball, taking part in the formation of practically the whole of the inner wall of the

orbit, being separated from the orbital cavity by a very thin plate of bone known as laminapapyracea of the ethmoid bone, which is not infrequently perforated by congenital defects, through which venous channels communicate with the ophthalmic veins. This is a possible source of orbital infection, which may even lead to the fatal septic thrombosis of the cavernous blood sinus. The ethmoidal cells may even overlap or occupy partly the sphenoidal cell area. The ethmoidal labyrinth, from its position, with frontal sinus above, maxillary antrum below and the sphenoidal sinus behind, may, in morbid conditions, infect or be infected by any of these air spaces as a result of the destruction in part of the partition wall. The anterior ethmoidal cells communicate with the middle meatus of the nose through several openings and the posterior ones with superior meatus of the nose.

The Sphenoidal sinus.—The first indication of this air space has been noted in a 65-day embryo. The distinct cavity is seen in an eight day old infant. At six years, it is a respectable size cavity, attaining the size of a bean. The cavity is separated from its fellow of the opposite side by a thin septum which is seldom vertical and not infrequently congenitally perforated. The sinus may, partly or wholly, overlap, its fellow of the opposite side, thus giving rise to bilateral or contralateral symptoms in morbid conditions. The lateral wall forms an important relation to the internal carotid artery, cavernous venous and also the third, fourth, the ophthalmic division of the fifth and the sixth cranial nerves. The thickness of the partition walls varies inversely with the size of the sinus cavities. The optic nerves, the optic chiasma and optic tracts and the ophthalmic artery and the opthalmic veins are in close relation to the sinus wall anteriorly and laterally. The sphenoidal sinus communicates with the nose through an ostium in its anterior wall, opening into the spheno-ethmoidal recess of the nose.

From this anatomical account, it appears that the anterior group of sinuses comes in close relation with the anterior half and the posterior group of sinuses with the posterior half of the orbit and its contents. The anterior group of sinuses is in immediate relationship to the floor, the anterior half of the medial wall and the roof of the orbit, the posterior group being in immediate relationship to the posterior half of the medial wall of the orbit and to the superior orbital fissure, the optic canal and the cavernous sinus. The spread of infection may be by (1) mechanical obstruction, e.g. pressure on the naso-lachrymal duct in acute maxillary sinusitis, giving rise to infection of the lachrymal passages and thus secondarily infecting the conjunctival sac; (2) by inflammatory extension as a result of caries and absorption of the bony wall

of the sinus separating the cavity from the orbital cavity or through the congenital defects in the bony walls already referred to in the anatomical sketch, or through the septic thrombosis of the small venous channels, communicating with the ophthalmic veins in the orbit, or possibly also by the lymphatic vessels; and (3) reflexly, e.g, chronic conjunctivitis, blepharitis etc.

The ocular manifestations of the anterior group of sinuses mainly are headache, supra or infra-orbital neuralgia as the case may be, pain at the back of the eye, œdema of the eyelids, chemosis of the conjunctiva. These show that the inflammatory process has extended to the orbit; this is followed by ptosis, the outward displacement of the eyeball and the consequent diplopia. If the condition is allowed to go on without proper treatment, subperiosteal abscess, orbital cellulitis and sloughing of the orbital tissues may ensue. Extreme cases will probably give rise to septic thrombosis of the cavernous blood sinus which in all probability will end in death.

The ocular manifestations of the posterior group of sinuses are retrobulbar neuritis, optic atrophy, paralysis of the ocular muscles and the septic thrombosis of the cavernous sinus. The ophthalmoscopic examination may reveal nothing abnormal or may show haemorrhagic retinitis and optic neuritis, while the examination of the visual fields may show an enlargement of the blind spot (Van-Der-Hoeve's sign), peripheral contraction of the field of vision and central scotoma, first relative for colours only, later on absolute. These symptoms may be bilateral or even contralateral. Reflexly due to septic absorption, and irritation, the morbid condition of any of these air sinuses may give rise to any of the following troubles: severe headache and neuralgia, chronic blepheritis, phlyctens, diminution of the visual acuity as well as of the visual fields, asthenopia, scotoma, photophobia, blepherospasm, dilatation and also inequality of the pupils. The pupils may react to light but the reaction may not be maintained—Hippus: of the rare conditions are iritis, iridocyclitis, cataract (Ziem) and glaucoma. An early recognition of any of these above noted symptoms is very important; they warn an early and scrupulous examination of the nose and para-nasal sinuses on both sides, even to the extent of the exploration of the sinuses, although there may be no obvious sign of suppuration. If any morbid condition is found, it must be duly treated. An orbital abscess due to one of the anterior group of sinuses, as a rule, indicates an external operation on the affected cavity. A collection of pus in the orbit needs immediate evacuation; the delay would mean loss of sight or even would cost a heavy price in terms of human life resulting from secondary

intra-cranial complications. Simple oedema may however disappear after the intra-nasal manipulation and the establishment of the proper drainage. Lachrymal obstruction due to maxillary sinusitis should be treated as a definite entity. If proper treatment of the antrum and passing a lachrymal probe down the naso-lachrymal duct, do not improve the condition, a radical operation may eventually be necessary; and an ideal operative line of treatment in such cases would be to re-establish the intra-nasal drainage of the lachrymal sac. This condition is satisfied by an operation known as dacryo-cysto-rhinostomy. first suggested by Mr. J. M. West 1910. It establishes a direct communication of the lachrymal sac contents into the nose in front of the middle turbinate bone, the inner wall of the sac having been removed during the operation.

The last condition which needs special description in this paper is known as vacuum frontal headache. This condition was first described by Sluder. It is a form of headache which results from the closure of the inlet of the frontal sinus; consequently the air in the sinus becomes absorbed and a secondary passive congestion of the lining membrane takes place. As a result of this the thin bony floor of the sinus becomes very sensitive to pressure. The maximum point of tenderness lies medial and posterior to the attachment of the pulley of the superior oblique muscle of the eyeball, this being the thinnest part of the floor of the frontal sinus. This sign is known as Ewing's sign. Owing to the close relation of the pulley to this thin area, the headache is intensified by the movement of the eyeball in almost all acts of accommodation. Hence, aggravation of the headache from use of the eyes is an important diagnostic feature of this condition, specially in those conditions in which there is an entire absence of nasal symptoms. The patient generally consults an eye specialist who very probably would prescribe him a pair of glasses; as no good has resulted from it, the sufferer goes to another eye specialist and the third one too. Each one in his turn modifies the first prescription or adds a prism, saying muscle balance is at fault. None of these tricks would help the poor sufferer. The case may next pass to a nose and throat surgeon, who may also fail to locate the cause in the nose in the absence of any markedly visible pathological conditions. The maxillary and the frontal air sinuses on transillumination may appear clear. The rhinologist consequently falls back to a radiologist for a skiagram of the paranasal sinuses. In such cases, the radiologist invariably sends skiagrams with his usual report "Nothing abnormal detected in the para-nasal sinuses". Thus nothing of any worldly use would come out of these elaborate investigations and the poor sufferer would be a slave to aspirin powders or Veramon tablets or some sort of belladonna pills, and perhaps a daily laxative dose. The conditions in the nasal cavity, which may produce the vacuum in the frontal sinus, are in part anatomical and in part pathological. Thus a narrow nasal cavity, by deflection of the septum or an unusually narrow hiatus semi-lunaris and a super-added hyperplastic condition of the mucosa in the middle meatal region, would lead to a closure of the frontal sinus inlet. The middle concha, to all outward appearance, may appear normal or the hyper-plastic process may involve the middle concha. If the covering mucosa of the anterior ethmoidal cell region be involved, marked oedema or even polypii formation may be present as a definite pathological entity, resulting from a chronic non-suppurative catarrhal process.

The vacuum frontal headache may be differentiated from a supra-orbital and supra-trochlear nerve neuralgia by the fact that Ewing's spot lies internal to these nerves and the tenderness elicited by pressure on the spot is much more pronounced than that obtained by the pressure over the nerves.

Treatment:—The local treatment e.g., chloretone spray or silver-nitrate 2% application would be of little avail. Polypii, if present, must be removed, and the pathway of the frontal sinus should be opened up by removing the anterior two-third or more of the middle turbinate bone and passing a frontal sinus canulla. The prognosis is good and the cure of the headache will be permanent if the cause is radically and permanently treated.

In writing this paper, I have practically nothing original to offer. I have made full use of the literature on the subject at my disposal and it is my pleasant duty to acknowledge my indebtedness to various authors. My thanks are also due to Dr. K.P. Mody, the Honorary Radiologist to the Hospital, for his kind co-operation in the radiographic work for investigation of the frontal sinus.

NASAL DISCHARGE AND ITS TREATMENT.

BY

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NASAL discharge may be (1) watery, (2) mucus, (3) pus or mucopus, (4) food, (5) blood, (6) cerebrospinal fluid.

By nasal discharge we commonly mean 1, 2, 3. But before discussing it and the treatment of its intractability, let us dismiss the other factors in short.

Regurgitation of food through the nose is either mechanical or nervous and neuro-muscular. Of mechanical causes; (1) congenital cleft palate (2) acquired perforation of palate especially syphilitic are the chief causes. Post diphtheretic paralysis, bulbar paralysis, Myasthenia gravis fall into second group. Treatment varies with the causes.

Causes of epistaxis may be tabulated as follows:—

Local—Traumatic e.g., Blow.

Fracture of base of skull. Foreign body in nose operation, nose-picking etc.

(2) *Ulcerative*—trauma, syphilis, malignant, tuberculous, leprosy.

(3) *Neoplastic*—polypii, adenoids, angioma, rhinoscleroma, malignant disease.

(4) *Varicose*—Multiple telangiectases.

(5) *Inflammatory*—catarrh, diphtheria, influenza.

General—

(1) High arterial blood pressure.
(2) High venous blood pressure—in emphysema.
(3) Heart disease—mitral stenosis.
(4) In chronic splenomagaly—(a) Kalaazar (b) chronic malaria (c) leukamias.
(5) Onset of specific fevers—enteric, influenza, measles, small pox.
(6) Anaemias and altered condition of blood—scurvy, purpura, jaundice, pernicious anaemia.
(7) Alterations in atmospheric pressure—Diving, caisson disease, rising to higher altitudes.
(8) *Sexual causes*—(A)Vicarious menstruation (B)Menopause.

Treatment is directed accordingly.

Discharge of cerebrospinal fluid takes place through nose when there is an injury to the head leading to fracture through base of skull involving one of the anterior fossæ. But I have seen one instance of discharge where an adult female aged 28—had cerebrospinal rhinorrhoea for a year. The fluid ran down profusely whenever she sat up. The patient was conscious and there was no history of trauma. The condition was ascribed to syphilis attacking the base of skull—But anti-syphilitic remedies were of no avail.

It is easy to conceive that preliminary discharge from nose in common cold is watery. But later on, with the chronicity, it may run on to mucus. The other factors leading to serous, mucous and muco purulent discharge are:

(1) Measles, influenza.
(2) Iodism, bromism.
(3) Local irritants as snuff, ammonia vapour, chlorine gas.
(4) Spasmodic rhinorrhoea (allergic)

Now purulent discharge may be the outcome of serous and mucous discharge or it may be initially purulent. Its common causes are:

(1) Pus in the antrum of Highmore due to chronic sinusitis.
(2) Pus in frontal air sinus due to sinusitis.
(3) Nasal diphtheria.
(4) Syphilis.
(5) Gonorrhoea.
(6) Atrophic rhinitis.
(7) Hypertrophic rhinitis.
(8) A foreign body.
(9) Lupus of nose.
(10) Rodent ulcer.
(11) Rarely malignant growths spreading from lip.

We are concerned here with the common cold and its effects as sinusitis, rhinitis. The removal of proper causes may lead to the cure of serous, sero-purulent, purulent discharge.

Let us start with the pathology of common cold. The changes may be divided into three stages.

Stage 1. The reaction to infection begins by an increase of secretion from its mucous glands. If the secretion is not sufficient to destroy the catarrhal organism—the pathological process passes to the second stage.

Stage 2. The increasing toxin from the pathogenic micro-organisms paralyses the secretion and nose gets dry. But deprived of moisture—their activity for a time gets paralysed. But toxin getting into circulation may call forth fever. The fever subsides when systemic immunity is set up. Locally out-pouring of serum with host of leucocytes tends to destroy the micro-organisms.

Stage 3. Reactive stage:—Now the time has come for mucous to remove the micro-organisms—the mucous glands begin to secrete again and now the discharge is free consisting of desquamated epithelial cells and sometimes micro-organism.

Types of cold.—Pathologically we may consider two types of cold—leucocytic type where the bacteria cause leucocytes to be attracted into the mucus for ingestion. In serous type—bacteria are destroyed by immune bodies excreted in the serum.

Treatment:—When leucocytic type becomes intractable, severe pain as a result of sinusitis is the rule. The most important

point to remember is never to use as watery solution in case of acute sinusitis. For it is another way of diluting the antibacterial substance in the sinus. Hence the best way is to apply over the nasal mucous membrane.

(1) Cocaine 5% sol. in saline.

(2) Medicinal paraffin.

Serous type becomes intractable on account of desquamation of the epithelium and of toxic absorption. Local pain is rare—but low fever. Pain in joints and back from toxic origin are the rule. Treatment is by oily douches.

The combination of these two types is most hard to deal with. But under suitable conditions, a mild cold recovers by itself. But reinfection is possible by air-borne root as from people's septic teeth or by finger-borne root.

The nasal mucous membrane in the stage of recovery from a cold re-grows the epithelium which has been desquamated during the active process and also forms additional new mucous glands if the state of recovery is prolonged and presence of micro-organisms tends to produce fibrous tissue. If process of recovery be prolonged—one of three factors will predominate. (*a*) If mucous glands grow in excess—the process terminates in hypertrophic rhinitis (*b*) if fibrous tissue in excess—a fibrous type of atrophy results. (*c*) If desquamation has been excessive a crusting type of atrophy with fibrositis, neuritis—joint pain arthritis result.

Treatment of hypertrophic sinusitis and rhinitis.—Here operation leads to radical cure and septal irregularities or polypi may be removed. But in case of slight and recent hypertrophy

(1) Nasal lavage { Borax, Sodi. chlor., Sodi. bicarb. } aa grs. vi ad ℥ 1 Aqua.

B. D. or t. d. s.

(2) After cocanisation of the part, caustic as chromic acid or trichloracetic acid in liquid form on a probe may be applied.

(3) Galvano—cautery.

In case of extensive and old standing hypertrophy Actual removal of part by (1) Nasal scissors and snare

(2) Scissors and Luc's nasal forceps. After treatment—

(1) Nasal packing with gauze (sterile) for 24 hours.

(2) Measures to keep nasal fossae clean and free of septic slough.

(3) Measures to establish nasal breathing by systematic healthy exercise.

Treatment of Atrophic rhinitis.

(1) Cleanse the nose of crusts and discharge with Hydrogen Peroxide—if necessary, crusts should be removed with forceps.

(2) When it is clean, it may be packed with gauze, soaked in the following solution and this retained in nose for 24 hours.

℞

Iodoform	grs. 30
Bis Subnit	grs. 60
Paraffin liq	ad ℥i

(4) After removal, the nose is cleaned twice daily, first by douching with Saline, then with

℞

Hydrogen Peroxide	vols. 20 ℥i
Normal Saline	ad ℥x

This should be warm and the strength of Peroxide should be increased until slight stinging follows its application. The nose should be rigorously blown and the following solution swabbed into nose with wool.

℞

Calamine	grs. 60
Glycerine	℥i
Aqua ad	℥i

If saline fails to stop discharge—1% sol. of argyrol or a drachm of Tr. iodine to a pint of saline may be used. Occasionally a little 1% formalin in the patient's bedroom--which allowed to work—during the patient's sleep works wonder.

In acute cases, a masterly inactivity gives the best results provided we raise the general resistance. If this fails, douche the nose with oils. If there is reason to believe that pus is retained within a sinus—we should contract the mucous membrane with cocaine and try to cause the pus to escape. If this fails, introduce soft catheters into frontal or sphenoidal air sinus.

If there is an empyema of maxillary sinus—this should be washed out by making a tiny opening back in nose beneath inf. turbinate and oil should be used for washing.

Some factors in production of sinusitis and leading to intractability of discharge.

(1) *Dental sepsis* may act directly or indirectly. We all know how abscesses at the root of molar tooth frequently infect the antrum. Indirectly pyorrhoea lowers the resistance or may cause infection of air round the patient.

(2) *Nasal obstruction* acts (1) by diminishing the opening of nasal sinus so that it affects the drainage of this into nose.

(3) by bringing (*e.g.*, Deviated septum) a considerable area of mucous membrance to be out of inspiratory air current.

These two factors must be remembered in treating the case of a nasal discharge. Last though not least, the use of vaccines in those cases is advocated by some. A culture is made from pus and a very small dose is injected into superficial layers of dermis. If the vaccine contains toxins which are circulating, a reaction similar to that of Von Pirquet occurs. By degrees of reaction, the appropriate dose of vaccine is gauged.

SOME VAGARIES OF THE "COMMON COLD"

BY

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OF all the ills that flesh is heir to, one of the commonest perhaps, is the "common cold," from the obliging visitations of which no age in any country is exempt. It is ubiquitous and, strange to say, is present as much in the frigid and temperate regions as in the torrid. The incidence, of course, varies and there obtains a variation in the mode of onset depending upon variation in the geographical location.

Incidence—It may, without fear of contradiction, be affirmed that "COLDS" are very much more common in cold countries than in warmer climes, the weather of choice being the winter months, where the low and moist atmospheric temperature accounts for the majority of cases. On the other hand attacks of cold are by no means rare in the summer months in the tropics. From a careful consideration of some hundreds of cases it would appear that apart from that great and inexplicable factor of IDIOSYNCRASY—where a person will develop a cold from the most insignificant, the most absurd cause, in fact, from no *human*-

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cause, whatsoever—attacks of cold are favoured by a *humid atmosphere* of either temperature. Thus, a dry, crisp, frosty air of the higher altitudes has been found to contribute very many less cases of cold than when the same became humid during a thaw. Again, a water-laden hot air, in which individuals find themselves as in a constant vapour bath (as it obtains in the plains of Bengal during the summer months), is very much more prone to furnish cases of common cold than when it is dry, although the temperature thereof may be several degrees higher than in the other case. Witness, for example, the up-country summer months, the temperature of which is high enough to blister delicate skins, but the hygrometric reading whereof stands low.

It must be clearly understood, however, that the above observations exclude all reference to any mechanical irritation set up by the dust which is invariably borne in quantities by up-country summer storms. Inhalation of such dust does give rise to attacks of cold, without doubt; and I wish to make it clear that my observations are limited to a more or less "gentle" motion of the air, which is not strong enough to blow dust about. In other words, I am just considering the *temperature* of the air in so far as it registers a *relatively high hygrometric index.*

It is difficult to say which of the two—hot air or cold—gives rise to more cases of cold. Acclimatisation is a potent factor and does count for much. Thus, individuals inured to a cold climate suffer more when transferred to a hot place, and vice versa.

Causes of Cold:—I have so far limited myself to a consideration of *humid temperature* only as a factor in causing cold. There are hosts of others which may, roughly, be classified as follows:

I. *Physical or Mechanical Irritants*:—Dust, sand, coal-dust, stone-dust, etc. In short, inhalation of any fine foreign particles may set up an attack of cold.

II. *Chemical Irritants*:—Any irritating gas will do this, *e.g.*, Chlorine and sulphur dioxide; Bromine and Iodine vapours; Hydrochloric, sulphuric and Nitric acid fumes, etc., etc., etc.

III. *Thermal Irritants*:—Extreme cold or heat *per se*, independently of any other factor, may induce inflammation of the mucous membrane concerned, and thus give rise to an attack of cold.

IV. BIOLOGICAL IRRITANTS

A. Vegetable:—Powdered tobacco leaves and Veratrum when inhaled cause prolonged sneezing and may end by giving the inhaler a "cold".

Certain pollen grains, the anemophilous seeds of certain plants, etc., seem to possess specific virtues (apart from any

slight mechanical irritation these might cause) in setting up inflammation of the nasal mucosa. So also, certain bacterial organisms.

B. Animal:—Authentic cases of "cold" in man set up by products of animal organisms (e.g., eggs) are wanting, although this has been observed in animals.

The Evolution of a Common Cold:—Whatever agency may be responsible for its causation, the evolution of a common cold is more or less as follows:—

After a variable interval following exposure to the "cause"—of which the individual may be aware in some cases (as a slight chill), and in others absolutely not—, and this *interval* may be as short as a few minutes only, as with the chemical irritants, or hours together, as with most of the other groups of factors—the individual feels a slight heaviness in the head and nostrils. Soon this latter increases, and drops of a thin serous fluid pour down from the nostrils—a condition which the individual finds very unpleasant, sometimes distressing—necessitating a too frequent application of the handkerchief to the nose to catch the warm saline drops.

While this rhinitis is in progress, the conjectivae show signs of congestion, as also the pharynx. There occurs a certain amount of lachrymation and pain in the throat, the latter discomfort being felt chiefly about the region of the posterior nares, doubtless due to extension of the inflammatory process. The pharyngeal mucosa as a whole may become congested, or the tonsils alone may be involved, and depending upon the nature and amount of the causative factor the inflammation of the mucous membrane in these situations may be more or less acute. Meanwhile, the nostrils feel blocked from congestive swelling of the lining mucous membrane, and respiration through these passages of nature becomes more and more difficult until, finally, this becomes impossible altogether and the person breathes through his open mouth. As a result of the inflammation the mouth feels dry, while the act of mouth-breathing renders this unpleasantness decidedly worse.

Involvement of the air sinuses and the consequences thereof:—

Owing to an extension of the inflammatory process into the air sinuses communicating with the nasal cavities, there occurs very commonly a bad frontal or fronto-temporal headache, and, sometimes, a tenderness about the teeth of the upper jaw from involvement of the antrum of Highmore.

Such, then, is an attack of common "cold in the head" which, with luck, may clear off in 4 or 5 days' time. The nose, eyes, and throat are restored to their normal condition by the end of this time, although the effects of inflammation in the [illegible]

sinuses take sometime longer to clear off, the delay being due, mainly, to the smallness of the openings of such sinuses. These sinuses being practically *culs-de-sac* from the nasal cavities do not transmit air in the same amount or with the same force or ease as do the nasal cavities. Besides, the openings of these sinuses into the nasal cavities are quite small, and when the mucous lining of these become thickened from inflammation, the openings become very much smaller. Such being the normal-abnormal condition of these openings, it requires no great fertility of the imagination to idealise that passage of the thick inflammatory products (of the mucous membrane lining these sinuses) through such constricted openings must necessarily become a matter of considerable difficulty, there being no *vis a tergo* to effect the expulsion, which is left mainly to the unaided action of gravity. To be more accurate, a little aid in this direction is afforded by the suction action due to the relative vacuum produced when the nose is blown. But all these forces can act only at a disadvantage where the opening itself has become so very constricted. The contained product itself being a thick muco-pus, yellow in colour, sinusitis is a condition that tends notoriously to persist sufficiently long after the rhinitis, its progenitor, has disappeared from the scene.

Most readers will now be able to recollect that the above is a fair description of an attack of a "Common cold in the head."

The Vagary:—Having occupied this platform for the best part of a week, it is open to the "cold" to choose either of two courses, and it is here where the "vagary" comes in. It may make its bow to the host and prepare to take its departure in the approved courtly fashion, or abruptly and without courtly decorum make up its mind to pursue its onward course in the stealthiest manner possible. In the latter alternative, there are just two paths for it to choose from—the respiratory and the alimentary,—and it is next to impossible to tell before-hand which exactly it will honour with its visit.

A.—By far in a majority of cases it would appear to show a predilection for the respiratory path in a very insidious manner. It is to be remembered that I am speaking of nothing but the "common", the "homely", cold, which an individual knows from previous experience is nothing more serious than of the nature of an unpleasant neighbourly call, and thus submits himself to the prospect of a few days' inconvenience. This over after four, five or six days, he goes about his job and resumes the normal course of his life. But soon he discovers to his chagrin that there is a slight, very slight, oppression about the front of his neck and that he would like to cough up something that seems to stick about and

above the supra-sternal notch. He does so and brings up, a some effort, a little solid muco-purulent mass. There is a sli tracheitis or tracheo—Bronchitis! The extension of the in matory process has been so very insidious that the sight of muco-purulent lungs takes the individual by surprise, and might be a matter of a couple of weeks before the condition cl up completely. Just, perhaps, a few coughs during the waki hours—but vigorous ones, and in most cases *ineffectual*, Phlegm being so sticky—but for which the individual forgets about the recent attack of cold he has had. The Phlegm sticky and solid, small in amount, and really difficult to bring In some instances the effort of coughing leads to a sli haemorrhage, possibly *passive* in nature. Thus, in more instanc than one I have known persons having their morning tea cou up a few lumps of a dark clotted blood, followed by some thic lumps of mucus. The sight, needless to say, is quite disquieti to the family circle. Each time I have known this thing happe has invariably been the morning. During the course of the da following this disquieting event of the morning, a thick muc intimately mixed or tinged with dark blood is coughed up a fe times, the quantity diminishing during the course of the next day, getting quite absent by the day after to the great relief of the uneasy family.

As I have already said, the sight of *blood coughed up* is anything but reassuring to anybody. It thus becomes very important to notice the *dark, clotted,* nature of the blood and the lumps of mucus following and so differentiate the condition from haemoptysis.

Such, then is an insidious attack of "cold in the chest" not accompanied by any of the usual sthenic manifestations—rise of temperature, pain in the chest, a frequent and troublesome cough, etc., etc., etc.,

B.—There is a saying current among the laity in some parts of India (I have heard it said in Bengal, Behar and the United Provinces) to the effect that *there can be no cold in the head* (or chest either) *without some accompanying cold in the abdomen*, and I have found from repeated observation that there is some truth in this popular saying. The fact of the matter is that a "cold in the head" is *not* infrequently due to an extension upwards of a catarrhal condition of the gastro-intestinal tract. A good many subjects of chronic constipation suffer from a chronic procto-colitis the condition being induced by the retained faeces which the torpidity of the bowels fails to evacuate effectually. That this does occur is evidenced, in inveterate cases of constipation, by the *regular* passage of flakes of mucus along with the

stools, and sometimes independently of these, and in cases of a milder nature by the *occasional* passage of such mucus. It is such subjects as these who are particularly prone to develop a "cold in the head" on the slightest provocation and often in the absence of any, apparently. Apart, again, from such established cases of chronic constipation, a *relative constipation* of a few days' duration only may, likewise, lead to an attack of "cold in the head" from no ostensible cause, whatsoever. The popular saying, thus, has some foundation in fact. A catarrhal condition of the stomach or of the small intestine (gastritis, enteritis) has been observed to cause "cold in the head" in infants and children much more frequently than in adults. In fact, this is a matter of pretty frequent occurrence.

On the other hand, the inflammatory process, erstwhile limited to the fauces and the region of the posterior nares, instead of choosing for its onward peregrination the respiratory tract may, by a sheer freak of vagary, take the alimentary route, and travelling down the oesophagus reach the stomach to set up there a variable amount of gastritis. Passing through this viscus the mischief reaches the small intestine, there to find freer play for its activities, the result being an unexpected and unexplained diarrhoea for the surprised sufferer. The fluid motions show a variable amount of flakes of mucus, while the vomits are characterised by the presence of an excess of a glairy, rather tenacious, mucus. This alimentary extension occurs chiefly in children and is observed, sometimes, in old people, adults suffering relatively less from this complaint. The effects may last a week or ten days and, with careful regulation of the child's feed, disappear without any medicinal treatment.

Finally, extension of the inflammatory process may take place *simultaneously* along both tracts instead of down one only, a condition the management of which requires care and consideration.

C.—The most capricious vagary, however, that I know of is when the cold *primarily* invades the air sinuses. The symptoms in such a case are extremely misleading. There may be an evanescent congestion of the nasal mucosa, the small serous effusion from which, and the associated sneezing, may not last beyond two or three hours at the outside. The one thing that the patient complains of, however, is an *intractable headache.* It is that and only that which racks the patient, who has practically nothing else to complain of. There is, practically, no cough in such cases. *The headache tends to persist with varying intensity for weeks, and the condition baffles the usual anti-headache treatment.* The rational treatment can only consist in ridding the sinuses of the products of inflammation, and I have already indicated the difficulties that

must attend such a procedure. The condition, thus, is extremely annoying in some cases.

The character of the material, when it does find an exit from time to time through the constricted orifices, is more fluid than solid and of a decidedly yellow colour—sometimes a beautiful golden-yellow, at others of the colour of the turmeric. The products of inflammation must liquefy sufficiently *inside* the sinuses *before* the former can, with any degree of reason, be expected to find a passge out, and it is thus that Sinusitis is prone to linger and keep up the unpleasant headache so familiar to the poor sufferer to his extreme discomfort.

Treatment:—What to do in a case of "common cold"? is a question a satisfactory reply to which would, no doubt, interest many people. This may, conveniently, be considered as follows:—

A—Abortive.—My advice is "nip it in the bud, if you can." To this end I have tried Tinct. Quininæ ammoniata and have found a few repeated doses of this answer satisfactorily in a fair percentage of cases *only when the patient takes it at the very outset.* Later, when the cold has been of some hours' standing, it proves a failure. Another remedy is the familiar DOVER'S POWDER. *Just when* the individual *suspects* that he is about to have a bout of "cold in the head" and seeks medical advice promptly, counsel him to go home, take a hot foot-bath, as hot as he can comfortably bear, and slipping under a warm blanket in bed take 10 to 15 grains of *fresh* Dover's Powder with half a teacupful of hot milk, hot light tea or plain hot water. It is very desirable to inquire into the patient's idiosyncrasy for opium beforehand, as unpleasant symptoms have not infrequently been observed to follow the exhibition of this product, which does contain a little opium. Follow this up in a few hours' time, if feasible, by a brisk saline purge. A mixture of salts, like the following, I have found to answer better than any one singly:

℞

Mag. sulph.	ʒiii to ʒiv
Sodii sulph.	ʒii
Sodii phosphus	ʒii
Aqua chloroform	ʒi

Warm the draught before use.

If an hour after exhibition of the Dover's Powder the individual is found awake (as he is likely to be in the daytime and when the nasal discomfort is not too trifling), give him a powder of the following recipe every 15 minutes until eight such have been taken—

℞

Hydrarg. subchlor	gr. II
Sodii Bicarb.	gr. XX
Menthol	gr. II

Misce. Fiat pulveres 8.

The eight powders will, thus, take only an hour and a half to take, half an hour after which the saline draught may be swallowed. This second recipe materially assists the action of the first, and should be administered whenever time permits. Should, however, the individual doze off to sleep after taking the Dover's Powder, he should not be disturbed, as he can take the powders and the draught on waking.

B. Curative.—When, after a few hours' (any time after six hours) interval, the "cold" has become *established*, all attempts at aborting it prove futile. INSUFFLATIONS, ERRHINES, etc, are, at best, tardy in their action and very often ineffectual. When from the swelling of the nasal mucosa respiration becomes difficult, apply Liq. adrenalini Hydrochlor., 1 in, 1000 to the inflamed mucous surfaces with a small cotton-wool swab. This will go to shrink the structure quickly, but the application requires to be repeated to maintain the relief thus afforded.

When, however, the "cold" has become *firmly established* and extended down the trachea and bronchi, the only really satisfactory mode of treatment is provided by HYDROTHERAPY. Immerse the patient up to the neck in a tub of tepid water to which a handful of common salt or two tablespoonfuls of powdered (table) mustard have been dissolved. Let cold water be sprinkled (a sponge can be used conveniently for the purpose in the absence of a shower bath) gently on his head while he is in the tub, where he should remain from 20 to 30 minutes, or longer if the patient does not feel any inconvenience, specially a sense of shivering. Maintain an uniform temperature of the bath by the occasional addition of hot water to it. The efficacy of the tub is greatly enhanced by a brisk massage of the entire body, including the head, *while the patient is in there.* The patient is to have the tub *at least twice daily.* The duration of the attack is certainly cut short by this method of treatment. Robust adults and healthy children stand the bath quite well; adults and children in a feeble condition of health may not. The duration of the bath should be much less in the case of children. Wrap the patient in a warm blanket just as he emerges from the bath and put him straight to bed, and ensure by all means that he does not catch a chill during this transit. A warm drink—*hot* tea, milk, lemonade, etc.—under the warm blanket will be found grateful, six to eight such baths on an average have been found to cure a "common cold".

THE SURGICAL REMOVAL OF TONSILS AND CONTROL OF HÆMORRHAGE

BY

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SURGICAL removal of Tonsils is a very ancient operation and was being done even before the time of Celsus i. e. A. D. 10. But these early operations merely removed portions of the Tonsils. Several instruments were devised for this purpose. The guillotines in use at the present day are modifications of these original instruments. The thorough method of complete ennucleation of the Tonsils by blunt dissection was started by Waugh of London in 1908. Whillis and Pybus of Newcastle in 1911 also introduced the new method of completely removing the Tonsils with the Guillotine by means of what is known as the reversed Guillotine Method. Greenfield Sluder of America in the same year introduced a new method which differed very little from that of Whillis and Pybus. The present day practice is to completely remove the Tonsils either by the guillotine or by blunt dissection.

In this article I propose to deal with the method of removal practised at the Government General Hospital, Madras. Dissection has been found to be a much better method than the use of the Guillotine and is invariably practised. Whillis and Pybus themselves mention that 80 to 90% of Tonsils are completely removed by this method. But on the other hand with dissection the Tonsils can be completely ennucleated in practically every case.

Preparation of the patient.—The previous preparation of the patient is as important here as in any other surgical procedure. Tonsillectomy should not in any circumstance be looked upon as a trivial operation. The patient may or may not be given a purgative the previous day but should be kept on light diet. Calcium Lactate in 10-20 grain doses is given three times a day on the previous day. This diminishes haemorrhage to a considerable extent. Glucose by mouth also may be given with advantage. On the morning of the operation the patient is given a cup of weak Tea or Coffee with very little milk, and a slice of toast or a biscuit. Half an hour before operation a hypodermic injection of 1/100 grain of Atropine sulphate may be given. This lessens the secretion of Saliva and gives a clear field for operation.

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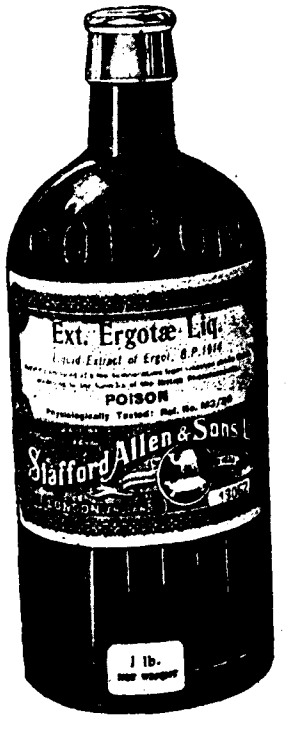

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Anaesthesia.—The operation may be done under Local or General Anaesthesia.

Local anaesthesia.—This is usually employed for adults. 2% Novocaine with some Adrenaline 1 in 1000 is used. With a special syringe—I have found Dan Mackenzie's Tonsil Anaesthetic syringe most useful for this purpose—the solution is injected deeply into the upper and lower poles of the Tonsils and also into the pillars. Tonsillar tissue also may be infiltrated similarly. By the time the second tonsil is injected the first one will be ready for operation. It is an advantage to give a hypodermic injection of ¼ gr Morphia before the operation—about half an hour-as it soothes the patient, to a considerable extent. I have not found any advantage in painting the Tonsils with cocaine, before injecting Novocaine.

General anaesthesia.—Chloroform is the anaesthetic in general use. Chloroform anaesthesia is very satisfactory if it is in safe hands. The great necessity for a skilled anaesthetist cannot be too strongly emphasised.

Posture of patient and operation under local anaesthesia.—

For the operation under local anaesthesia it is not necessary to make the patient lie down on a table. The patient is seated on a chair with an adjustable head—rest. The surgeon sits on a stool in front of the patient. The instruments and nurse are to the right of the surgeon. Any kind of artificial light reflected from the Head-mirror will be found satisfactory. I have found the Chiron Examination lamp manufactured by Messrs Mayer and Phelps, London most satisfactory. It is rarely necessary to have the help of an assistant. The chief essential to success is to gain the confidence of the patient.

The patient is now asked to open his mouth and a tongue depressor is introduced to keep the tongue down. Then the Tonsil on one side is caught with a vulsellum and pulled towards the middle line. Now the mucous membrane immediately medial to the anterior pillar is cut either with a knife or scissors or torn with Waugh's dissecting forceps, care being taken not to go through the capsule of the Tonsil. This capsule is easily made out by the glistening white colour. This incision is now carried towards the upper pole of the Tonsil and dissection of the Tonsil is carried out. It will be found necessary to alter the hold of the vulsellum to properly engage the Tonsil. The Tonsil is now pulled forward and dissected free of the Posterior pillar. Dissection is now continued towards the base of the tongue. The final attachment is either torn through or separated by using a snare, Eve's Tonsil snare is both simple and useful for this purpose. There is usually very little bleeding in this operation. If there is any haemorr-

hage the bleeding vessel can easily be caught and ligatured. The second tonsil is also removed in the same manner. The two tonsillar fossae are now wiped clean and dry and painted with Friar's Balsam or Whitehead's varnish. This acts both as an antiseptic and also seals small bleeding vessels.

Posture and Operation under a general anaesthetic.—The most satisfactory posture here is what is known as the "Recumbent Extended head position". A sand bag or pillow is placed under the shoulders and the head now naturally rests on the occiput. It is more advantageous to operate standing or sitting at the top of the table than doing the operation standing facing him. I have found the Boyle-Davies gag most useful for this operation. The gag is fixed and maintained in position by the Negus's jack. In this method the anaesthetist is quite out of the way and there is no need for an assistant except when a suction apparatus is used to remove blood from the field of operation. The nurse and instruments are to the right of the surgeon. Here also adequate illumination is necessary. I have found Gilbert Chubb's headlight very useful, convenient and efficient. The use of this light obviates the necessity for keeping an examination lamp in front of the operator to reflect light into the throat. The technique of removing the Tonsil here is similar to that described for removal under local anaetshesia. The only difference is that the anatomical relations are reversed. No blood can be swallowed in this operation as all the blood flows into the Nasopharynx from where it can be easily removed.

Haemorrhage after Tonsillectomy.—Haemorrhage may occur at the time of the operation or sometime afterwards i.e., secondary. It must be said that haemorrhage after Tonsillectomy is not so common as one is led to believe from the number of contributions on the subject and from the variety of instruments devised to control it. I have not come across a single haemophilic patient in India and perhaps this might explain the practically entire absence of excessive haemorrhage both during and after the operation. I have had some cases of excessive bleeding during operation but in no case has it been uncontrollable. The chief bleeding points according to Irvin Moore are:

1. The anterior pillar of the fauces with Ascending Palatine branch of the external Maxillary artery.
2. The posterior pillar containing a branch of the Descending Palatine artery.
3. Tonsillar branch of the External Maxillary in the Tonsillar fossae.

4. Tonsillar venous plexus at the lower portion of the Tonsillar bed.
5. Supratonsillar branch of the Descending Palatine artery at the upper pole of the Tonsil.
6. Tonsillar branches of the Dorsalis Linguae artery situated in the lower and outer part of the tonsillar bed.

In addition to this very severe haemorrhage may take place from injury to an abnormally situated Internal Carotid Artery.

Control of haemorrhage during operation.—This in most cases can easily be carried out by pressure with cotton, wool or gauze swabs. If the bleeding persists gauze pressure may be applied again. It is a great advantage to use gauze dipped in Turpentine for this. Use of pressure with pressure clamps is not advisable as it causes great discomfort and distress to the patient. It also induces coughing and straining which may lead to bleeding from the opposite Tonsillar fossa. Moreover one cannot say how long the clamps will have to be left in as bleeding may recur after removal of the clamps. Prolonged pressure will also cause sloughing and necrosis of the tissues. I have found the clamps useful only for applying pressure for a few minutes. If the bleeding is not controlled by pressure a systematic search should be made for the bleeding points. These bleeding points should be caught by artery forceps and ligatured. I have found Birkett's long Artery forceps very useful for this purpose.

There are some cases in which it is impossible to find the bleeding points, a general oozing taking place from the Tonsillar fossae. Here it will be necessary to temporarily suture the two pillars together. This can be easily done with Irwin Moore's needle and hook. It may be necessary also in certain cases to put a pad of gauze under the sutures. In the majority of cases it is only needed to simply suture the two pillars together. The ligatures should be removed the morning after the operation as also the pad of gauze if present.

In all cases it is advantageous to keep ice outside the neck in the tonsillar area immediately after operation. Injection of morphia and atropine and also Pituitrin will also control haemorrhage to a great extent.

Secondary haemorrhage occurring sometime after the operation should be treated in the same way as primary. Usually a clot will be found in the Tonsillar fossa with oozing underneath it. This clot should be removed and the bleeding area dealt with.

After-treatment.—The after-treatment is very simple. No solid food should be allowed for the first two days. On the day of

the operation only sips of iced water or lemonade are allowed. Milk should not be allowed as I have found that it invariably prolongs the period of convalescence, it being very difficult to keep the Tonsillar fossae clean. Towards evening on the day of the operation if the patient complains of pain, fomentations may be applied to the neck. The fomentations may be continued for two or three days. One should also be very strict about the hygiene of the mouth. The patient should gargle his mouth several times a day with warm Condy's fluid or any mild antiseptic lotion also warm. This gargling should more especially be done after each feed. It is better still to syringe the throat as the solution can then be used in larger quantities and warmer. The Tonsillar fossae should also be touched with Hydrogen-peroxide once a day for 4 or 5 days. The patient should not be allowed out of bed the first four days or out of doors during the first week. The throat generally clears up within ten to fourteen days.

SURGICAL TREATMENT OF THE AFFECTIONS OF THE PHARYNX AND FAUCES.

BY

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THE commoner affections of the upper part of the throat from the root of the tongue to the entrance of the gullet are pharyngitis, enlarged tonsils, elongated uvula, and post-nasal adenoids; and I shall only deal with them, as it will not be possible for me to give notes on each and every disease in this short synopsis.

Granular Pharyngitis.—This disease is usually an outcome of frequent exposure to dust, over indulgence in tobacco, alcohol, rich food, and also nasal disease, adenoids, septic tonsils and dental affections. Therefore care should be taken to ascertain the cause of the disease and treat accordingly. If local treatment fails, the granules require cauterization under 5 to 10 p.c. cocaine anaesthesia with galvano-cautery followed by antiseptic gargle and medicated swabs.

Elongated uvula.—The uvula generally undergoes lengthening from acute inflammatory condition of the pharynx; and after a chronic course it is hypertrophied; the result being incessant cough due to tickling sensation of the throat especially in recumbent position. Sometimes the uvula becomes unusually long and causes

partial obstruction of the throat. I knew of a patient who suspecting it to be a foreign body in the throat nearly tore it off in the act of removing the same.

The operation is uvulotomy; 5 to 10 p.c. cocaine solution is freely applied to the uvula and then the gag is applied. The tip of the uvula is seized with a pair of uvula or peritoneal forceps and held in position without drawing it forward and then the redundant portion is divided with uvula scissors or any blunt-pointed curved scissors on the flat. McKenzie advises to cut it off in "an *upward and backward* direction, so as to leave the wound on the *posterior surface*". Usually there is no bleeding, but still it is advisable to touch the raw surface with 2 p.c. solution of silver nitrate. But if there be any bleeding the raw surface should be touched with dull red hot tip of the galvano-cautery. A weak antiseptic gargle is only necessary for the after treatment.

Tonsils:—Various forms of ulcer, chancre, tubercle, gumma, and a variety of malignant disease, such as sarcoma, cancer etc. are to be considered in association with inflammatory enlargement of the tonsil. There may be presence or absence of glandular enlargement of the neck also. In septic cases pus is situated within the crypts of the tonsils. In doubtful cases we must resort to histological and bacteriological examinations before settling the question of operation.

Sometimes one or both tonsils are enlarged; and the enlargement may be to such an extent as almost to meet in the middle line, so that swallowing is often interfered with and respiration is more or less impeded; consequently "the patient breathes through the open mouth and snores loudly during sleep, and hindrance to respiration interferes with development of chest. Hearing is impaired from obstruction of Eustachian tube". There is another type known as "buried" or submerged tonsil which is found hidden by distended faucial pillars. Tonsillectomy in these cases is a more difficult operation than enlarged and movable tonsils.

Indications for Operation:—(1) Mechanical obstruction, (2) secondary interference with general health and development of the child. If a septic tonsil be not removed the patient is subject to repeated attacks of catarrhal or suppurative tonsillitis and also acute rheumatism with its sequelæ endocarditis, chorea and tuberculosis. If a spetic tonsil is pressed laterally by means of a spatula, pus is seen coming out of the crypts.

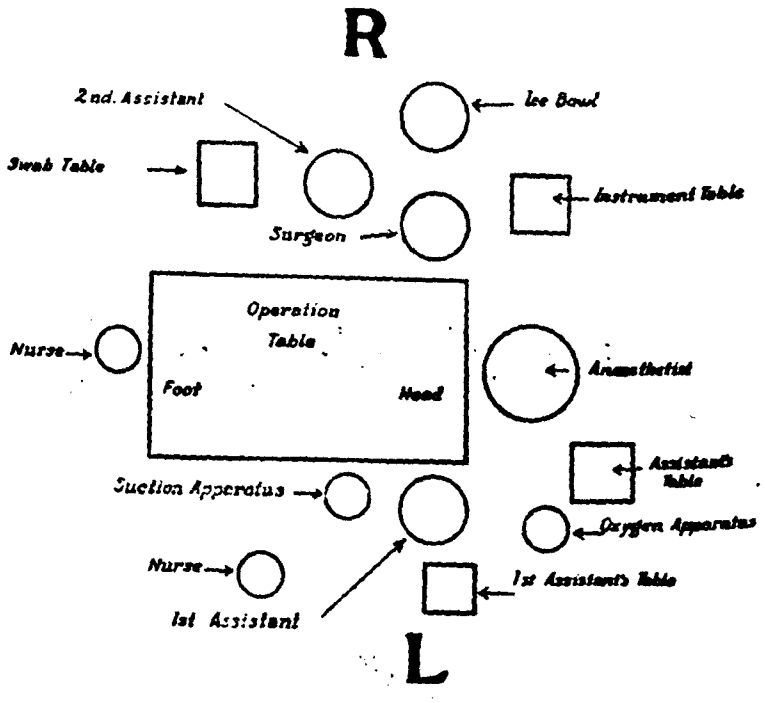
Inquiries are made whether the removal of the entire tonsil is safe. Of course, so long as the tonsil is healthy, it is or may be conducive to health; but when it is diseased, or functionless or is

the seat of a septic focii, its presence is either useless or even harmful; consequently its removal then may save the life.

Treatment:—In mild cases occasional suction of the pus from the tonsils by means of a special apparatus often affords relief, and may cure the condition if regularly treated. But if the treatment fails we must have recourse to operative procedure.

There are mainly three methods of operations: (1) Tonsillotomy–partial removal, (2) tonsillectomy—ennucleation or complete removal *with the capsule intact*, and (2) tonsillectomy by dissection.

Recurrences occur usually after tonsillotomy, so it is now practised by general practitioners only, but is totally discarded by the specialists.



Preparation.—If there are any carious teeth, alveolar abscess or pyorrhoea, the condition must be attended to by a dentist before the operation can be undertaken. A weak antiseptic mouth wash and alkaline mixture should be given for two days preceding the operation. Some surgeons in order to control haemorrhage inject Haemoplastin (P. D.) a few hours before operation especially for haemophilic and even grown up patients with *fibrous* tonsils.

Anaesthesia.—General anaesthesia is usually administered now-a-days, but some surgeons operate under local anaesthesia also. Tonsils are painted with 10 p.c., solution of cocaine and infiltration anaesthesia is produced by injecting 1 or 2 p. c., novocaine solution into the circumtonsillar space. But this is not possible with children of tender ages. As for general anaesthesia the anaesthetist should be an expert one and must know his job thoroughly well.

Position.—There are, so to speak, four positions; namely, lying flat on the table, body lying flat on the table and the head hanging over the end of the table, lying on the right side, and sitting in a chair. But I have found the dorsal position best with some alteration in the position of the head, i.e., head being supported on the table *in extended condition* by an assistant or anaesthetist. In the position of head hanging down over the table, steady support of the head is not always obtainable, and the operator too cannot find the same facility in every case.

Instruments.—There are several types of guillotines, namely, Heath's, Howarth's, Jenkins', Ballenger's, Macdonald's and so on; I, for myself prefer Ballenger's instrument. Doyen's mouth gag (improved model) or Sydenham's with cam-grip lock is the most suitable of all gags for this purpose. Frankel's or Rumboll's tongue depressor, half a dozen sponge-holding forceps with serrated fenestrated jaws and a few Schnidt's tonsil artery forceps are also wanted.

OPERATION:

Besides the anaesthetist two more assistants are necessary for the operation. The anaesthetist stands at the table and has to perform three-fold duties, e.g., giving anaesthesia, supporting the head and turning the patient to the side face looking downwards. He keeps an oxygen cylinder near by and emergency requisites on a table on his left side. In well-equipped hospitals Rowbotham's apparatus for suction and etherization are kept by the left side of the first assistant for withdrawing blood and contents of the cavity; but there is really very little necessity; and the less complicated an instrument is used the better.

The patient is put under chloroform, his ears are plugged with cotton and face is wiped dry with a little alcohol and then as soon as the patient is 'under', the anaesthetist raises the head and the first assistant at once slips in a sterilized towel beneath the neck and fastens it with a clip over head. There is no need for deep anaesthesia; as soon as the patient is 'under' an expert surgeon starts the operation and finishes each side in a couple of minutes.

"Team work" is only possible with specialists, but you can train your assistants quite easily to make them serve your purpose.

Now, the head is held by the anaesthetist between his palms with the occiput pressed against the table and the face looking forwards and upwards. The assistant then inserts the gag and opens the mouth, while the surgeon makes a final examination of the tonsils and wipes out the throat using one swab for each side; after which gag is closed. The anaesthetist again gives a few whips of chloroform to make him fully under, while the surgeon selects the guillotine according to the size of the tonsil and capacity of the mouth.

Sluder's operation is applicable in majority of cases, specially in children. The operator stands to the right of the patient and keeps his instruments in a sterilized tray on a table within hand's stretch. The first assistant stands to the left; he has a very responsible and attentive duty; and it is an unpardonable offence if he allows the gag to slip off in the midst of the operation. He should open the gag when the surgeon would require it, and close it when not needed, and must not remove the gag without the surgeon's permission. He should watch from time to time whether or no the tooth-plates of the gag are in the right position; if not, he should at once re-adjust them. The surgeon introduces the guillotine through the gag, and sometimes uses the instrument against the gag *as a fulcrum* in the manipulation, and there is fear of dislodgment of the gag; and it is then when the assistant should be very careful, and keep the tooth-plates pressed well inside the mouth by holding the handles *away from the cheek* and even use both hands to keep the gag in position; if he fails, he should replace the gag immediately.

The second assistant stands to the right of the patient about 2 ft. to the left of the operator: he remains in charge of the swabs. He prepares the swabs, by means of gauze pieces proportionate to the size required for the patient. He places the sterilized swabs fixed on to the forceps in a tray on a table by the right side, and keeps one in hand with handles towards the surgeon in readiness, and hands it over to him as soon as he stretches his hand. He also keeps a bowl full of ice in sterile water, and cotton swabs on a stand by his left side.

In this article I shall only deal with the technique of complete ennucleation of the tonsil. The right tonsil is treated first, and that is a better plan. Bending over the patient with the guillotine in the right hand and right elbow over the patient's body the surgeon introduces the same *through the left angle of the mouth* and directs the tonsillar end of the guillotine against the base of

the right tonsil or wall of the pharynx in between the tonsil and posterior pillar, while the tip of his left index finger presses on the supratonsillar portion of the soft palate or anterior pillar of the fauces to force "the buried part of the body of the tonsil into and through" the opening of the guillotine and then "the blade is closed sufficiently to prevent the tonsil from slipping out again. There is a *'click'* sound as soon as the tonsil passes through the eye. The finger must be removed before the blade is pushed home, otherwise the palate will be button-holed." (Harmer—Carson's Modern Surgery). There is also danger of wounding the pillars of the fauces, especially the anterior one. So a momentary inspection of the tonsil is most important; this is done by slightly turning the guillotine flat. If not correctly done he readjusts the instrument with both hands. Then the blade is forced home and kept tightened for about a couple of minutes in order to crush the vessels before severance; and then the handle is turned so as to make the tonsillar end lie *flat*, i.e., "the plane of its broad surface parallel with the plane of the dorsum of the tongue, its handle being brought round so as to lie pointing downwards—towards the patient's chest" (McKenzine). Usually this manoeuvre is sufficient to remove the tonsil; if not, a slight pull will dislodge it. The tonsil comes out fixed in the guillotine. Howarth's improved apparatus is fitted with a blunt and a sharp blade, of which the blunt one arrests hæmorrhage by crushing the vessels, while the sharp one severs the tonsil. The sponge is at once inserted into the fossa and pressed against it for a few minutes to stop the bleeding. The surgeon examines the tonsil to see if the capsule is complete and intact. If not, he again removes the rest of it, after which he takes up the left tonsil as before *with the exception* that he has to use the left hand for the left tonsil; but he can also use his right hand from the right aspect of the patient (if he is not ambidextrous) by standing over the head of the table, (on a raised foot-stool), of course at some disadvantage; but there is no help. Some specialists say "Let the surgeon leave off tonsil operation, if he is not able to use both hands with equal facility." After removal of both the tonsils the surgeon at once applies two swabs simultaneously on both the fossæ with both hands *cross-wise* and the anæsthetist immediately turns the patient's body sidewise and face downwards over a bowl, and the surgeon or his assistant flushes the face, nape of the neck and angle of the jaw with iced water soaked in cotton swabs continuously till bleeding stops. Then the patient is turned on his back and the throat is swabed with iced sponge 3 or 4 times, and then the fossa is minutely examined to see if the bleeding has stopped. If not keep pressure with sponge-holders for some time more. But if this

fails too, often pressure with swabs soaked with Tr. Ferri Perchlor stops bleeding instantaneously; but if there be any spurting, it must be secured with pressure forceps and ligatured. In rare instances where the bleeding cannot be controlled with ligatures, Harmer advises to place a small swab of gauze in the fossa and sew the pillars together over it. Make a point never to transfer the patient to bed unless all bleeding is stopped; after which he is removed to bed, head a little *down* and the body up. He is placed in dorsal position "head turned over and downwards", and pillows are adjusted so as to keep the head side-ways. A sterilized towel is placed under the head and shoulder and sterile gauze handkerchiefs are supplied to the nurse to wipe the mouth and lips *outside* only.

It is advisable that the surgeon should see the patient once after 2 or 3 hours. The pain is very acute for the first 24 hours and there is referred ear-ache also; after which the pain gradually subsides. No gargle is given before 48 hours, but a weak antiseptic spray, e.g., glycothymolin (1 in 4), listerine (1 in 6) or carbolic lotion (1 in 100) may be lightly used every 4 hours. Dr Judah advises a mixture of equal parts of orthoform and anæsthesin to be sprayed into the tonsillar fossa carefully by means of DeVilbiss powder blower (No. 36) 10 minutes before each feed in order to allay the pain in swallowing. No food should be given by mouth for 12 hours; only bits of ice or icecold water may be allowed at intervals to suck or sip. On the fourth day he may gargle and take milk and barley, milk and soda, fruit-juice, soup or soup-jelly and so forth. If there is any slough hydrogen peroxide, mixed with 4-times of sterile water may be given as spray or mouth-wash. Usually slough clears out from 8 to 10 days, when there may be secondary haemorrhage, but that is very rare. As a routine practice the patient is kept in bed for 3 days, and indoor for a week after which soft diet is given, and 10 days later the ordinary meal, if every thing goes alright.

ADENOIDS (PHARYNGEAL TONSIL)

Operation:—The preparation, anæsthesia, position and after treatment are all similar to that of tonsil operation. The only special instrument for this operation is a curette. St. Clair Thomson's modification of Delstanche's curette is the best and in general use. It is provided with a spring-held cage and curved hooks, and the growths, as soon as removed, are impaled upon the hooks and grasped in the cage.

This affection is usually associated with enlarged tonsils; in that case adenoids are operated upon immediately after the removal of tonsils. The instrument is held in hand like a dagger—handles

up and the cutting edge down—"emerging from the ulnar side of the closed hand", and passed over the tongue and then behind the soft palate *exactly in the middle line* until it comes in contact with the posterior pharyngeal wall and as high up as possible, and then the blade is pressed firmly and *in an uniform manner* against the wall and brought down in a semicircular motion towards the root of the tongue—half of which motion is effected by a downward stroke of the wrist, and the other half by the upward elevation of the wrist and elbow. If the cut is made boldly, the growth will be caught by the cage and removed *en bloc* with the instrument. In children one stroke in the centre is sufficient, but in grown-up boys and adults 2, 3 or even 4 strokes are often necessary. Care should be taken not to wound the uvula or the pillars of the fauces or allow the head to be thrown *too far back* so as to injure the prevertebral fascia o. even the bodies of the vertibrae. Sometimes it so happens that owing to blunt edge of the instrument or improper technique, the adenoid mass is detached partially and hangs down in the pharynx and requires removal with scissors or Jurasz's forceps afterwards. After removal of the adenoids the throat should be examined carefully and treated accordingly. Hæmorrhage is usually free, blood gushes out through the mouth and nose as well; and therefore head should be turned over to the side, so that blood may run out of the mouth, and the face is drenched copiously with ice-cold water which at once stops the bleeding.

After-treatment is similar to tonsil operation. No nasal douche should be given as a rule. McKenzie advises that "the patient should not blow the nose, save one side at a time, for a week after operation".

OCULAR MANIFESTATIONS IN SYPHILIS

BY

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SYPHILIS is the most important etiological factor in the various affections of the eye. These ocular manifestations of Syphilis may be considered under two heads, namely those which are associated with hereditary Syphilis and those which appear during the course of acquired syphilis. Nearly 50% of the affections of the eye in syphilis are bilateral, particularly in those which affect the uveal and nervous coasts of the eye.

Hereditary Syplilis.—Attentions of the eye which occur in hereditary syphilis may appear as early manifestations or as late manifestations.

The early manifestations include Iritis, Irido cyclitis, and Retino-choroiditis.

Iritis and Iridocyclitis are not very common. They usually make their appearance some months after birth and affect only one eye. They are usually chronic but occasionally may appear in an acute form. They produce a good deal of exudation causing posterior synechiae and occlusion of the pupil. Complications may occasionally be seen in the form of vitreous opacities or Interstitial Keralitis.

Retino-choroiditis, may sometimes occur in intra uterine life. Evidence of it is seen in the fundus after birth as white cirtricial atrophic spots.

Retino choroiditis occuring after birth may appear in a mild or more surely in an acute form. In the mild variety, small scattered reddish yellow spots are seen in the periphery of the fundus, scattered pigment spots are also seen. Disc is normal and there is no functional alteration. In the more acute variety the lesions are larger and more extensive. They are well marked at the periphery but they extend towards the disc and macula. There is pallor and even atrophy of the optic nerve. Vision is diminished and fields are contracted. There is marked pigmentary changes in the posterior pole where masses of pigment aggregation are seen. The affection is generally bilateral and often associated with Interstitial Keratitis.

Hereditary Syphilis is sometimes responsible for certain congenital malforamations such as coloboma of the iris, ectopia pupillae, Microphthalmia etc.

Amongst the late manifestations of hereditary Syphilis are Iritis, iridocyclitis, choroiditis and Interstetial Keratitis. The most important of these is *Interstitial Keratitis.* Three fourths of all cases of Interstitial Keratitis are syphilitic in origin. It is a bilateral affection, but more frequently the eyes are affected in succession than at the same time. The interval between the affection in the two eyes may be weeks, months or even of years. The essential lesion is a leucocytic infiltration of the cornea in its whole thickness, especially of the deeper layers. It has been suggested that the infiltration takes place round clumps of spirochaeta but none have yet been positively demonstrated in the cornea. The onset is insideous. The affection usually begins in the centre of the cornea and extends towards the margins. The comea becomes dull and lustreless and acquires

the appearance of ground glass. Vessels grow into the cornea from different areas beneath the limbus. These vessels being deeply situated give the appearance to the cornea of a salmon-patch. Gradually the opacities begin to clear up beginning from the margin. When it entirely clears up there is still left a diffuse cloudiness of the cornea. This cloudiness and a few minute lines, the original site of the vessels, can always be made out with magnification, even years after, and afford certain indication of a previous attack of Interstitial keratitis. The progress of regression does not start under 6 weeks. Generally, it begins only months after.

The condition is most commonly seen between 6 and 20 years of age. Rarely it may be seen soon after birth. It is more common in females. In these cases, other evidences of hereditary syphilis are always seen.

Keratomalacia is often the result of disturbed nutrition due to congenital syphilis. It is a bilateral condition. The conjunctiva and cornea are affected and the latter rapidly breaks down.

Optic nerve affections and paralysis of muscles are rare in hereditary syphilis. Occasionally a progressive external ophthalmoplegia may be seen. It is a bilateral condition, developing slowly and involving all the external muscles of the eye.

Acquired syphilis. In the course of acquired syphilis practically any part of the eye may be involved.

Lids. Lids may show changes in the primary, secondary or tertiary stage of syphilis. As a primary lesion chancre has occasionally been found on the lids. It is very difficult to recognise. Diagnosis will depend on the demonstration of spirochorta in the scrapings. Wassermann reaction is not positive till after a fortnight after infection. Local prognosis is good as the condition heals up without any cicatricial contraction.

During the secondary stage roseolar eruptions are often seen on the lids especially on its free border causing a falling off of the lashes. Blepharitis may occur, usually of the ulcerative form.

In the tertiary period, gumma, a diffuse infiltration of the lid or a syphilitic tarsitis may be seen.

Conjunctiva.—On the conjunctiva chancre, mucous patches or gumma may rarely occur. An intense conjunctivitis occasionally may develop as a secondary manifestation. It is usually bilateral. The conjunctiva has a polished and smooth aspect. This is probably a result of the generalised infection of syphilis affecting the mucous surfaces in the body. Mucous patches may appear at the same time on the lid border.

Gummata may occur as a tertiary manifestation. There is little pain with it and little reaction. The cornea may also become infiltrated at the same time,

The Lachrymal passages are rarely affected. Cases of true syphilitic dacryoadenitis have been recorded. The gland becomes swollen but there is no pain and no signs of inflammation. Occasionally the tear sacs are also affected.

The cornea may be attacked and an Interstitial Keratitis may occur but this is not common.

The uveal coat.—Of all the various manifestations in the eye during the course of acquired syphilis, *Iritis* is the most frequent; of all the various causes for iritis, syphilis, is the most common.

Iritis usually occurs 6 or more months after infection. Occasionally it may be seen earlier or not till years after. In these late manifestations the causal relationship to syphilis is not always quite clear. There is always probably some other superadded factor also.

Syphilitic iritis has no specifically characteristic signs. Pain of a neuralgic character is present in and round the eye. But it may be very mild. Visual disturbances are marked. Dimness of vision, photophobia and lachrymation are complained of. The chief objective signs are circumcorneal injection, infiltration of iris and contracted pupil. Atropine has a sluggish reaction on the iris and the dilatation is irregular.

Along with iritis, cyclitis may also be present. In this case there is great tenderness on pressure over the ciliary region. The prognosis is bad when the ciliary body is involved. In severe cases it may lead to atrophy of the eye ball.

Choroiditis. Choriditis is a frequent manifestation of syphilis. Most cases of choroiditis have a specific origin. The retina is also always involved. The most frequent form of choroiditis is the disseminated form. This is characteristic of syphilis. In the earliest stages the disc and surrounding areas of fundus are merely obscured from view, as if by a veil spread over it. Other parts of the fundus remain clear. Later, round or irregular spots make their appearance in the periphery of the fundus. These gradually extend and invade even the posterior pole. This is an extremely chronic affection. It may lead ultimately to partial or complete blindness. The optic nerve is generally atrophied to a varying degree. It is almost always a bilateral condition.

Retinitis and Neuroretinitis.—Choroidal affections always involve the retina also. But sometimes the retina alone may be affected. In such cases the disc also may be involved.

Optic atrophy in syphilis may appear in 2 forms: simple, or secondary.

Simple atrophy occurs as an entity by itself or more often it is an accompaniment of tabes or general paresis. A mere pallor of the nerve head is noticed in the early stages. Visual disturbances are also present at the same time. There may be only a contraction of the visual fields for colours at first; later the field for white is also affected. Acuity of vision also becomes diminished. At a later stage the disc becomes white or yellowish white, when atrophy is complete.

Secondary atrophy also called postneuritic atrophy, occurs as a result of neuritis. In this form the margins of the disc are not sharp and there are small collections of pigment here and there. The retinal vessels are also altered. Veins are tortuous and arteries are narrowed and bordered by white lines.

A simple papilloedema may sometimes be seen in cases of tumours of the brain of a syphilitic origin such as gumma.

Vitreous may become affected occasionally either alone or more commonly as a result of retinitis or chorioretinitis.

The Lens may become opaque and a cataract may develop. This is usually secondary to iritis or iridocyclitis, due to interference with its nutrition.

Orbital cavity and contents.—An osteoperiostitis occurs often, as a syphilitic manifestation. It may be either acute or chornic. It affects usually the orbital borders. The orbital border is thickened, the skin is raised up over it and there is great tenderness on pressure. The patient complains of neuralgic pain worse at night and radiating towards the temple, *teeth* and maxilla. The swelling may extend deeply and may cause exophthalmos, diplopia etc. The optic nerve may be involved and an optic neuritis or a retrobulbar neuritis may appear and cause even blindness. If the sphenoidal fissure is involved in the periostitis all the nerves coming to the globe are affected and the eye ball becomes fixed and immobile. The inflammation may extend even to the base of the brain. The affection is almost always unilateral and appears in the secondary or tertiary period. Prognosis is usually good.

Gumma has occasionally been met with in the orbit.

Affections of the muscles.—Syphilis is the chief cause of paralysis of the muscles of the eye. Paralysis may be due to Gumma of the nerves, or meninges, periostitis, arterial lesions etc.

Affections due to involvement of the sensory system. Trigeminal neuralgia. This may be seen early or late. All the three branches may be involved or only one of them. It may also occur as a parasyphilitic manifestation. Sensory branches alone are affected. An anæsthesia of the region supplied by the nerve is noticed. Sometimes pain is present along with anæsthesia.

The most frequent complication of an affection of the nerve is *keratitis Neuroparalytica*. This is an inflammation of the cornea arising from loss of sensibility and trophic disturbances. The cornea becomes dull and slightly cloudy. The epithelium exfoliates, an ulcer forms in the centre which may lead on to perforation. Associated symptoms of irritation are slight or absent. The lesion may be in the trunk of the nerve or in its nuculeus of origin.

Pupillary changes.—The most common pupillary change in syphilis is an alteration in the light reflex which becomes slow or even absent. At the same time accomodation and convergence reflexes are unaltered. The pupils of the two sides are slightly unequal. The pupil may assume an oval form also. These changes are frequently seen in old Syphilitics, especially in a large percentage of those who suffer from parasyphilitic lesions.

Lesions in the eye due to cerebral changes. Vascular and gummatous lesions in the brain may cause changes in the field of vision. Homonymous or Heteronymous *Hamianopsia* may be met with when lesions of the optic tracts or optic chiasma are present. A retraction of the visual field is seen in optic neuritis.

Affections due to involvement of motor nerves. Total ophthalmoplegia is sometimes observed; all the branches of the 3rd nerve are affected. It is usually a unilateral condition. Occasionally it is seen associated with a hemiplegia of the opposite side.

External ophthalmoplegia has often been met with. The ciliary muscle and iris are free. It may be unilateral or bilateral and may also be associated with a hemiplegia.

Treatment. It is not my purpose to discuss the general treatment of syphilis but I here wish merely to indicate the best methods of treating ocular syphilis.

In congenital syphilis and its complications internal administration of mercury is the best. Calomel or Grey powder may be used in appropriate doses.

According to various authorities, mercurial rubbings are the best for cases of ocular syphilis followed by a course of salvarsan. Bismuth injections are claimed by some to give better results than mercury. They seem to be especially beneficial in involvements of the nervous system. In optic atrophy there is no agreement as to the value of salvarsan: but in the early stages small doses carefully regulated may be of value.

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MODERN METHODS IN THE TREATMENT OF DISEASES OF THE EYE, EAR, NOSE AND THROAT

The field is a very large one and the space is very limited. In a short article therefore it is not possible to either discuss in detail or mention every advance made in either diagnosis or treatment of diseases of the eye, ear, nose and throat. It is our intention to review some of the more common and important diseases and to mention, where available, only non-controversial conclusions.

In the section on diseases of the eye, one cannot but be impressed with the advances made in mechanical devices for examination of the eyes—the Slit lamp is one such apparatus. An increasing appreciation is also evident of the part played by general malnutrition in diseases of the eye. Scrofulous tendencies give many local manifestations in the eyes. So much so it will not be an exaggeration to say that healthy eye is an index to a healthy body. We shall next briefly touch on some common eye conditions such as corneal ulcerations, glaucoma, myopia and cataract.

Corneal ulcerations are of great importance. The commonest types are Hypopyon, Mooren, Phlyctenular and Dendritic ulcers. Other causes are acne, trachoma and nero-paralytic conditions. The pathological process involved is imperfect protection followed by abrasion of cornea and penetration of invading organisms, their toxins causing hypopyon. Dental sepsis, diseased and regurgitant lachrymal sacs, general ill-health all predispose to the attack.

The treatment must be prophylactic. General treatment also is beneficial. Locally the site should be carbolised or cauterised. Atropine and cocaine drops or ointment, mercuric perchloride, scarlet red ointment or acriflavine drops may be used. Physiological solutions such as half saturated mag. sulph. soln. may be used as irrigations. Hot fomentations and leeches to outer canthus will relieve pain. Sedatives may be necessary. Probably the latest treatment is the use of ultra-violet rays, whose therapeutic value depends (1) on the lethal action of rays on the pathological organisms, (2) on the production of a vascular reaction at limbus and the invasion of the cornea by blood cells and inflammatory oedema thus flooding the area with bactericidal influences, (3) on the stimulation to regeneration of the exfoliated epithelium and (4) on the absorption of products of disintegration of cell proteins which exert a favourable influence over the local immunological mechanism.

Glaucoma is another important subject in this section. Various attempts have been made to lower intra-ocular tension by non-operative measures. Relief is reported in intra-ocular tension by the intravenous injection of 20 c.c. of a 30 p. c. hypertonic saline solution. A great deal of attention is also directed towards the products known as 'Glaucosans' which are in reality dextrorotatory synthetic adrenalin and histamine. These however have not justified expectations. Their use is accompanied by much pain and reaction and the results are not uniform. On the other hand their action is only temporary. The third non-operative method is the Adrenalin pack which consists in the application to the superior fornix of a pledget of cotton wool soaked in 1 in 1000 solution of Adrenalin chloride for five minutes. This method is of very great use in chronic primary glaucoma and reduces tension where intensive eserine treatment fails.

Myopia:—Much valuable work is also being done on myopia in the production of which under-nourishment and septic foci are important factors. It is now conceded that myopia is not an exaggeration of the normal growth of the eye but that it is a definite pathological process.

Cataract is the next subject which is of perennial interest to the medical man. With regard to its etiology many questions still remain to be answered. What influence, glare or strong light, starvation or local sepsis and the endocrine glands, have in the production of cataract is still an open question. One of the latest theories however is that senile cataract is due to a gradual change in some normal constituent of the blood—probably serum calcium, occurring at an age when the activity of the endocrine glands is decreasing. The question of treatment resolves into

medical or surgical procedures. In the latter the original Smith's or the Madras method find favour with a great majority of surgeons. Of course many modifications with very slight variations in any of the stages have been described. The medical treatment is still unsatisfactory. This is perhaps a field where the research worker may well toil to find a solution.

In the section on diseases of the throat the most interesting subject is that of *Tonsils* and adenoids. For a good many years a great deal has been written on this subject of "Tonsils and adenoids and their removal." Out of a mass of writings, debates, and discussions the following conclusions can be taken as non-controversial.

1. Tonsil operations are not trivial and should only be undertaken by a skilled operator.

2. A general anaesthetic is highly advisable, if not essential.

3. Whatever method used, complete extra capsular removal of tonsils is always preferable to a partial removal. Any operator should be equally skilled either with guillotine or in dissection and should be perferably ambidextrous.

4. Haemorrhage should be controlled completely on the operation table preferably by the formal ligation of vessels. The sewing of faucial pillars should, if possible, be avoided in singers.

5. Whatever method be adopted in dealing with tonsils, the operator should be competent to deal with any eventualities from start to finish even if it entails so responsible a task as ligature of ext. carotid artery. Diathermy in the removal of Tonsils has many advocates, but its value has been unproved. It is useless in children and healthy adults and its only indication is in patients whose general state of health makes tonsillectomy by dissection dangerous. For the removal of the hypertrophied or septic tonsils diathermy cannot be said to be an established procedure. With a disc electrode the depth of coagulation cannot be controlled; with a needle the coagulum does not extend to more than one or two millimetres. As an intra-capsular method it is a failure. We are waiting for an extra-capsular diathermic operation.

Malignant diseases of the larynx have also received a lot of attention. The most signal advance has occurred with the introduction and perfection of direct laryngoscopy. Regarding treatment there is not yet any satisfactory evidence to show that X Rays, lead, radium or diathermy are at present able to completely take the place of the knife. The most likely to do so is Diathermy and the most promising of success in conjunction with the knife is radium.

Endoscopy of air passages has also advanced a great deal.

Oesophagoscopy is very much done nowadays for the removal of foreign bodies; the treatment of strictures, dilatation, deveticulae and pouches; the diagnosis and partial removal of growths and the insertion of tubes or radium. Tracheoscopy and Bronchoscopy have also notably advanced. In all these the importance of teamwork and practice cannot be underestimated.

In the section on the diseases of the nose the subject of Hypertrophic rhinitis is of considerable interest. For the cure of this condition the objects attempted and achieved are very much the same as they have been for thirty years. The means adopted are as before, galvano-cautery, partial or complete turbinectomies, removal of spurs from septum and correction of its deviations. Notwithstanding these there have been very definite advances. For one thing, the surgeon of to-day is much more conservative. He hesitates to remove too much bone from a nose. Even the galvano-cautery is used much more cautiously and sparingly. Submucous methods for resection of septum have now been introduced and the modern general trend of operative measures in the nose is to preserve the normal mucosa. Apart from the improvements in our technique in the surgical treatment of hypertrophic rhinitis, our conception of the importance of this condition has widened. We now know that a removal of spur or correction of a deviation will often abort a threatened accessory sinusitis and will put an end to vasomotor reflexes chiefly headaches, asthma and hay fever.

The common cold is another of the common problems which we have to face practically every day. Of the legion of remedies which have been tried for this, the removal of the uvula has been discarded and even discredited. The Galvano cauterisation of granular patches on posterior pharyngeal wall is not encouraged. Perhaps the best method is the application of artificial or real sunlight after the exclusion of any gross lesion in nose and throat. After such trials, vaccines may be tried.

Atrophic Rhinitis is also a much discussed condition. It is presumed that it is secondary to nasal sinusitis. The essentials in the successful treatment of this condition are attention to sinus disease and the treatment of the crusts of the underlying mucosa with oily preparations day and night. Vaccine therapy and ionisation which are also used have not been sufficiently convincing.

Nasal accessory sinuses have, of late, obtained and perhaps retained more consistent recognition as the obvious direct source of local infections such as Bronchitis. They have also taken

their place with other focal infections such as pyorrheoa and infected tonsils, as the source of more remote systemic diseases. Among these remote infections due to and cured by the removal of sepsis in the tonsils or accessory sinuses may be mentioned skin diseases, retro-bulbar neuritis, iritis, conjunctivitis, ritis, episcleritis and rheumatic conditions. For diagnosis of sinusitis iodised oil for skiagraphy is recommended. Transillumination is useful only for the antrum of Highmore. Regarding treatment among non-operative measures salvarsan remains of great use. The results of Ionization have proved unsatisfactory. Artificial light has been found valuable. Diathermy has also proved useful in treating infected antra. Vaccines give varying results. In general it is however considered sound treatment to aspirate, irrigate or drain any infected sinuses,

In the section on Diseases of the Ear, deafness always crops up first. In the tests for deafness two difficulties always crop up. Artificiality of sounds used in testing deafness is the first. These are always monotonous and usually musical whereas what the patient wants is a human voice which can be characterised as more 'noises'. Many patients who react sufficiently to tuning forkes cannot hear in a theatre or cannot take part in meetings. The second difficulty is the difficulty to standardise these test noises. The ticking watch test has a fallacy in that the watches used to test these deaf cases are not identical. Now however the Royal Society of Medical Committee on otosclerosis have recommended the use of an ingersoll 5 shillings watch. In the field of treatment though there has not been much advance in the actual cure of deafness, many innovations of treatment have been suggested. The zünd Burguet 'Electrophonoid' method has recently attracted a great deal of attention. According to this method only 7% got no cure. This method however involves the use of an elaborate and costly apparatus. Diathermy and galvanism are also recommended for Tinnitus but they are not of any permanent value. For deafness due to chronic catarrh of middle ear, improvement has been noticed by passing a diathermy current from Mastoid of affected side to cheek of opposite side. Lewis Jones had seen similar improvements from galvanism applied to both mastoids with indifferent electrodes on some other parts of the body. Some find X-Rays of use in deafness due to recent catarrh of the middle ear. As regards treatment of middle ear deafness, it must be admitted that most of our resources still depend upon attention to throat, nose and accessory sinuses, on prevention and cure of catarrh, on eustachian inflation and as subsidiaries air massage of tympanum by mechanical massage. If these fail to cure and in all cases of Cochlear deafness resource must be had to artificial

ones. Old fashioned ear trumpets are obsolete and modern ones are electrical and so small as to be invisible when worn.

Otosclerosis is another important problem whose etiology is complicated and whose treatment is difficult. This condition is often associated with nervous degeneration and sexual abnormality probably due to endocrine disturbance. In its treatment, tobacco is prohibited and Thyroid extract and Iodine are tried. Attention is paid to the diet. Eustachian inflation and air pump massaging do good. X Rays help to regulate endocrine system. Locally puncturing the tympanic membrane gives good results. But as a rule general treatment promises much greater success.

Suppurative otitis media is another very important subject to be disccussed in this section. Careful use of Glycerine or carbolic acid when there is collection of pus in the middle ear distending the drum and early incision done to evacuate the puss are the first stages. Gentle swabbing out the meatus with ribbon gauze soaked in warm solution of Boracic acid and rectified spirit and the use of a sterile dressing will produce healing of the drum wound in two to three weeks. The after care is however very important. Nasal douches after the 4th week are useful in clearing the post nasal spaces and eustachian tubes. Septic tonsils, if any, should be removed after the sixth week. For any residual deafness or tinnitus the Eustachian catheter should be used after the eighth week. In those cases however where in spite of the strictest asepsis, the drum perforation does not heal the mastoid should be opened and a tube put in till the drum heals.

In chronic suppurative Otitis media however we have a greater latitude in the choice of therapeutic remedies. Aural syringing with various antiseptic solutions may be done here. Boric acid, resorcin chinsol, glauber's salts, mercuric-pot Iodide and even sanitas have been used. The most important thing is not the solution but the care and intelligence used in its application. Ionisation and Heliotherapy have also proved successful in some obstinate cases.

We have just touched some of those important subjects which may be of utility to the general practitioner. For further details we would refer our readers to the excellent Monograph on this subject by Lawson Whale in a book published by Jonathan Cape and also to the Prescriber dated November 1929.

Medical Men's Success in their Career.

"Lancet" endorses the following outlook on the part of the Editors of the "Antiseptic" as practical.

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Short articles of about 2000 words from you are also welcome.