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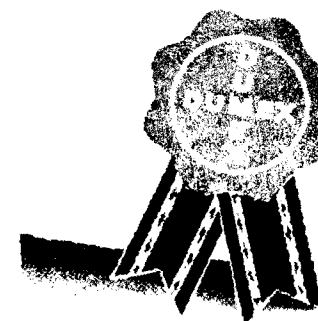
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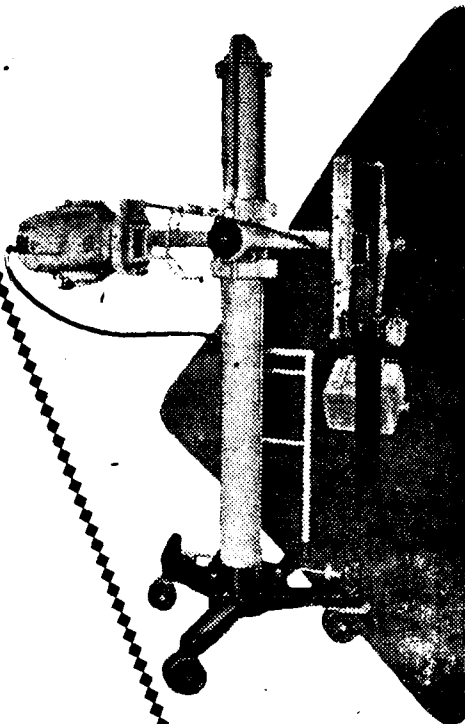
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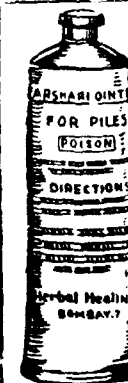
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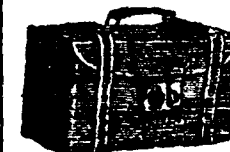
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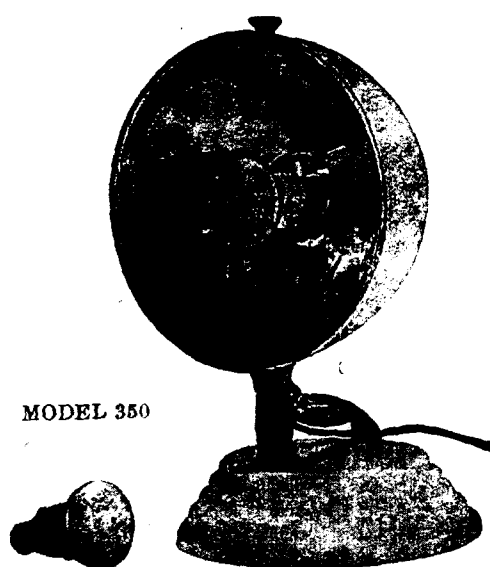
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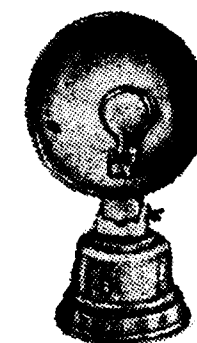
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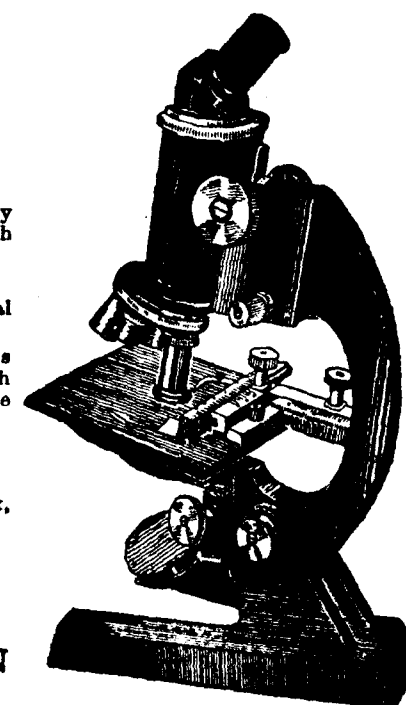
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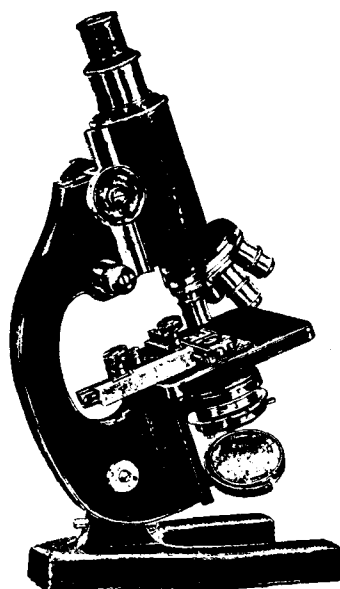


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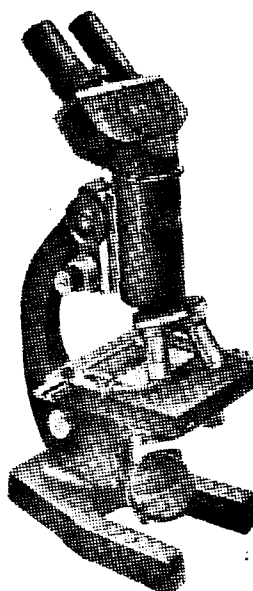
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Granules

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Each teaspoonful (5 G.) contains:

Calcium Phosphate	0.25 G.
" Carbonate	0.25 G.
" et Sod. Lactate	0.5 G.
Magnesium Hydrate	0.25 G.
Ferrous Sulph.	10 mg.
Calciferol (Vitamin D)	1,000 i. u.
Thiamine Hydrochloride	8 mg.
Riboflavin	2 mg.
Nicotinamide	50 mg.
Calcium Pantothenate	5 mg.
Pyridoxine Hydrochloride	0.25 mg.
Vitamin C	75 mg.
with Copper, Manganese and Cobalt in traces, in a flavoured sucrose base.	

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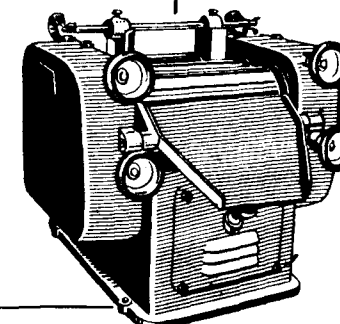
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for use
in Laboratories

TYPE
D.F.V.
100

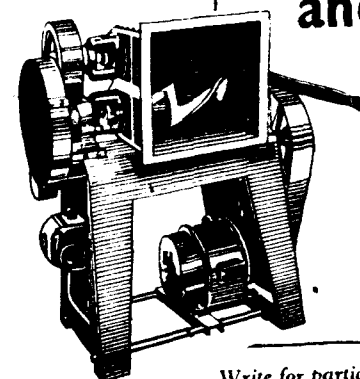
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The machine has three finely finished steel rollers of diam. about 100 mm, length about 280 mm running in SKF-bearings. They are water-cooled and equipped with a special device for regulating the water supply to each roller.



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Diat Kneading and Mixing-machine with Double Blades



Simple and solid construction with two turned, shiny-finished steel-blades, which closely follow the rounding of the trough. All bearings are fixed outside the specially shaped stuffing-pack-boxes, precluding the possibility of pollution of the matter under treatment. The trough is tiltable.

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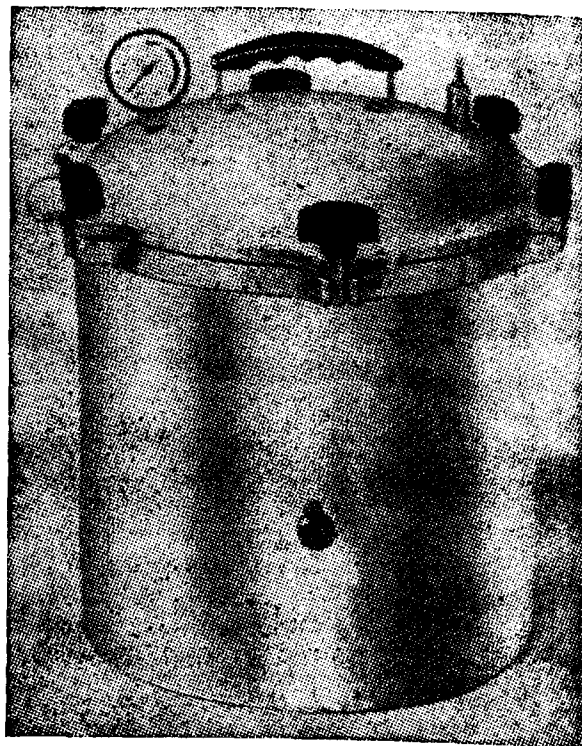
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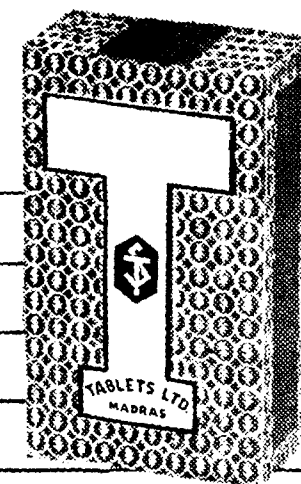
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WHOLE LIVER EXTRACT
FORTIFIED WITH VITAMIN
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BOXES OF 3, 6, 25 and 50
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In the management of

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AND
HAY FEVER

Composition:

Aminophylline	1½ grs.
Phenobarbital	1/6 gr.
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Most effective gastric stimulant

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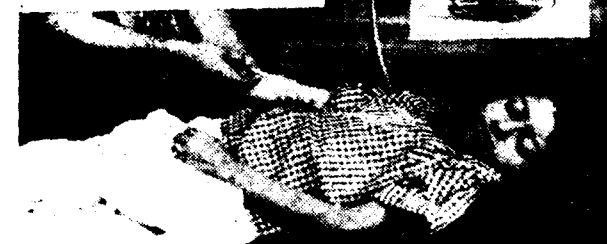
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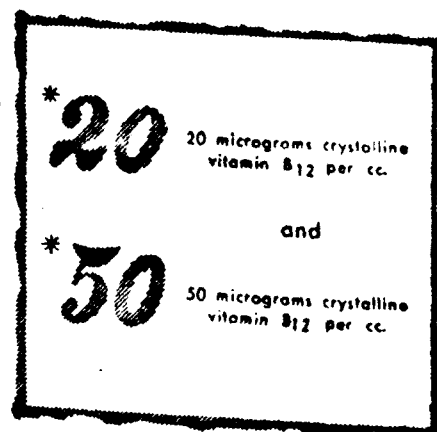
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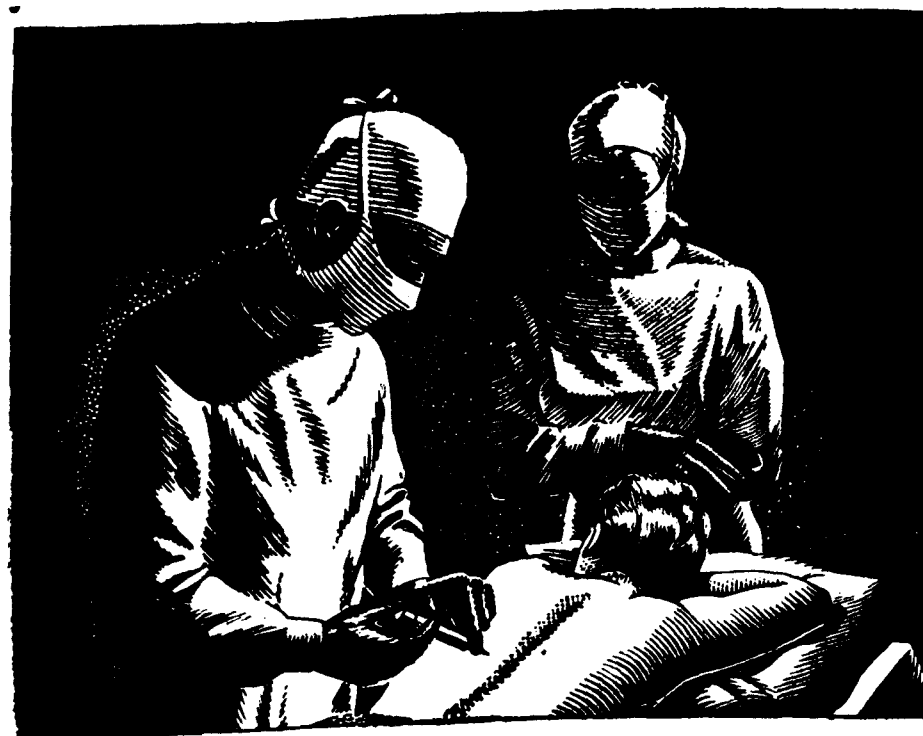


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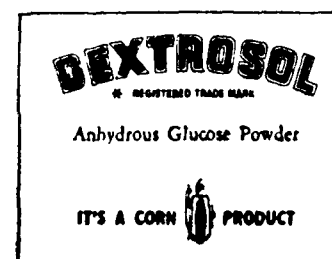
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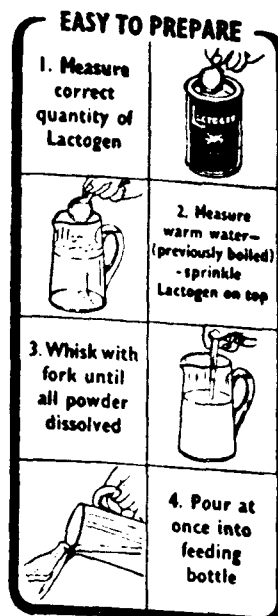
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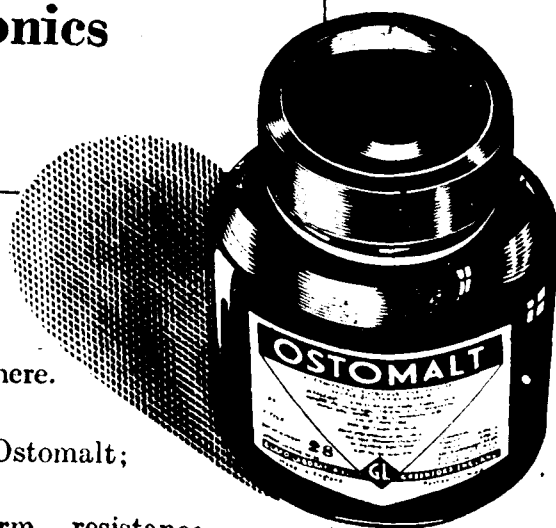
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Original Articles

CONGENITAL HEART DISEASES IN GENERAL PRACTICE*

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THE subject is of growing importance in view of the rapid surgical advances in congenital cardiac cases. Till a few years ago diagnosis of congenital heart cases was only of academic interest. Except the clinicians of the teaching hospitals, others did not bother about this condition. But now conditions like patent ductus and pulmonary stenosis are being corrected by surgical methods and in the former case the heart is practically restored to normal and in the latter, the relief afforded by operation is so remarkable that the patient is able to exert and lead a useful life. So now even the general practitioner has to interest himself in congenital heart diseases and be able to recognise the conditions which are amenable to treatment.

Congenital heart diseases constitute an important branch of cardiology. Congenital heart diseases are not of every day occurrence in general practice but once they come, they need constant watching and careful management. Hence the need for the general practitioners to have a working knowledge of the subject. The other more important aspect of a correct diagnosis of the case is that needless restrictions may not be imposed on the patient. It had been the routine some years ago to view with alarm any cardiac murmur and impose unnecessary restrictions on the patient.

* Specially contributed to THE ANTISEPTIC.

Some features of diagnostic importance with regard to congenital heart disease are :

(1) *History* :—If there is a history of the disease dating to birth or even to the first year of life, it should be presumed that the case is very likely to be a congenital heart defect.

(2) Though murmur is not a necessary feature of every congenital heart case yet when a murmur is heard, it is generally heard all over the precordium. In the young child the murmur is often missed when it cries. The doctor must get acquainted with the child, become friendly and only after the child has got over the fear complex, auscultate the heart.

I do not propose to enter into detailed classifications. Broadly speaking the cases are divisible under two headings:—the cyanotic cases and the acyanotic cases. In the cyanotic group, the cyanosis is due to either diminished aeration of the blood as in pulmonary stenosis or due to admixture with venous blood. This admixture with venous blood occurs in conditions where there is gross auricular septal defect or ventricular septal defect or a single vessel group the defect may be an arteriovenous shunt as in patent ductus. Even in the acyanotic group with the onset of heart failure, cyanosis may occur. There are cases of no clinical importance i.e. the defect may be so gross that it is not compatible with life at one extreme end and at the other extreme, dextrocardia, a condition that does not constitute a problem at all, and unless associated with other defects it does not in any way impair the efficacy of the heart. Some of the symptoms that result from congenital heart defects are lowered resistance to diseases and stunted growth. Generally the mortality is high in the first two years of life. Even after that, cyanotic children die young. After the second year, the non-cyanotic children have a better prognosis and have a good exercise tolerance in spite of the big size of the heart. Even so, these cases offer poor resistance to infections and an illness like pneumonia is serious. The myocardial efficiency is below par and is working under strain. This continued strain lowers the resistance and the congenital heart disease cases are all liable to bacterial and rheumatic endocarditis.

The endocarditis generally starts at the site of strain. In a bicuspid aortic valve defect the endocarditis is seen at the aortic valves. Usually these cases are associated with congenital defects elsewhere i.e. polydactyly or syndactyly, accessory nipple or accessory lobes in the ears or cleft palate. Clubbing of the fingers are also frequently met with, particularly in the cyanotic group. Invariably there is polycythemia i.e. increase in the number of red blood cells and a rise in haemoglobin content. Though murmurs are evident in many cases, they may be completely absent.

The most common complications met with, are acute and sub-acute bacterial endocarditis and in the older age group rheumatic endocarditis or valvular diseases. In cases with septal defects paradoxical embolism occurs. Pulmonary tuberculosis is met with in pulmonary stenosis due to diminished blood supply to the lungs. A very rare complication that occurs is rupture of ascending aorta with or without dissecting aortic aneurysm in coarctation of the aorta. Aneurysm of the cerebral vessels and cerebral haemorrhages may also occur in coarctation of the aorta, secondary to the very high pressure in the cerebral vessels.

The investigations that may be of help in these cases are:—A skiagram of the chest showing the antero-posterior view and both oblique views. This is of great value in the diagnosis of all heart diseases and in particular in the diagnosis of congenital heart cases without the presence of the murmur. Again and again it has been observed in any large hospital dealing with heart cases, radiology offers a clue to the diagnosis while clinically one can only say that there is some congenital defect. I might recall at this stage a man who was admitted with well-marked cyanosis and gross cardiac failure. The cause of the cardiac failure could not be made out. When an X-ray of the chest was taken, it brought out the prominence of the auricles and also the two pulmonary arteries grossly dilated. Screening revealed the so-called hilar dance, showing that we were probably dealing with a silent type of patent interauricular septal defect.

In another case a patient came to me for recurring attacks of fever with moderate enlargement of the spleen. Repeatedly blood smear had been examined for malarial parasites with negative result. Patient was also empirically tried on anti-malarial drugs and finally X-ray of the chest in the routine investigation showed a wide vessel area. On screening the patient, a well-marked hilar dance was evident, showing increased pressure in the pulmonary circulation. In this case the fever was the presenting symptom and since there was no cardiac signs and the only positive physical finding was splenic enlargement, malaria was naturally thought of. Radiology in this case was of help in arriving at the diagnosis. In this case blood culture was repeatedly negative for the streptococcal group. Thus radiology may be of considerable help in arriving at the diagnosis. But from this it should not be presumed that radiology will be of certain help in every case. For instance, I have seen another case with well-marked cyanosis and a fast heart. The man had absolutely no murmurs in any area. Respiratory system signs were suggestive of pulmonary tuberculosis. A skiagram of the chest showed a globular heart suggestive of interventricular septal defect. All that was possible to say from the clinical and the radiological examinations was that it was a case of some congenital cardiac defect with pulmonary tuberculosis, though at

first the case was thought to be one of congenital heart disease with endocarditis. The case came up for post-mortem and in the autopsy it was noted there was a patent ductus arteriosus, patent interventricular septal defect—patent inter-auricular septal defect and pulmonary stenosis. In this case the multiple defects were all silent and even radiology did not help primarily in the diagnosis of the heart condition; but helped in the diagnosis of the lung condition by revealing a small cavity with a zone of active tuberculosis.

The other important investigation is electro-cardiography. This may or may not be of value. By itself it is of very limited value. The other methods of investigation which we have not as yet started are cardiac catheterisation and angio-cardiography i.e. injecting X-ray-opaque material and taking serial X-rays, following the drug through the heart. The latter method is much too costly to come into routine practice in this country. By cardiac catheterisation and analysis of blood from different chambers we can infer the existence of defects.

We will now pass on to some of the important congenital defects. A defect in the aorta called coarctation of the aorta. According to Maud Abbot 15 % of all congenital heart defects are of this type. Either we are missing this condition or the incidence of this type of defect is low, I cannot say which. Probably both factors count.

Diagnostic features of coarctation are clinical and radiological. The diagnosis is suggested by higher pressure in the arm than in the legs, for example, in a boy of 3, blood pressure of 130 and 60. Subjective symptoms resulting in hypertension in the upper part of the body vary and include general weakness, palpitation, vertigo, throbbing headache and a feeling of heaviness in the head and visual troubles. Blood pressure is examined both in the arms and legs as a routine in all juvenile hypertension cases. Symptoms in the legs suggestive of intermittent claudication are found in some and no symptoms at all in others.

(1) *Clinical findings*:—By inspection and palpation abnormal pulsation is found both in the collateral and in the dilated arteries in the head and neck, central to the stenosis and finally absence of pulsation in the legs. Pulsation is well seen in the axilla, the supra-spinous fossa and close to the lower borders of one or more ribs. By percussion is made out hypertrophy mainly on the left side of the heart. Auscultation shows systolic murmur at the base of the heart and at the back especially in the interscapular area to the left. Probably the murmur originates from the collaterals and not from the stenosed part of the aorta. In organic obstruction of the arteries and in coarctation, an 'inverse reaction' with a diminished blood pressure and a decrease of pulsation appears after exercises. This is found in cases of thromboangitis obliterans, severe arterial

sclerosis and arterial embolism. It is not influenced by the presence or absence of intermittent claudication.

(2) *Radiological findings*:—Constant findings are: (a) Widening of the left subclavian artery which shows up as a S-curved outline to the left of the superior mediastinum with an impression on the oesophagus and an inundation to the left on the posterior mediastinum; (b) dislocation and shortening of the aortic arch with the absence of the aortic knuckle. Inconstant findings are (c) erosion of the ribs; (d) enlargement of the left ventricle and the increased course to the right of the ascending aorta; and (e) enlargement of the left auricle.

The condition is amenable to operative interference and with successful operation the blood pressure in the arms returns to normal; the blood pressure in the legs is elevated. Paradoxical reaction after exercise of blood pressure in the legs disappears.

Patent ductus arteriosus.—This is one of the common congenital defects of the heart. Till a few months ago, I did not realise the high incidence of the disease. In my ward alone within the last term we have seen about eight cases. The clinical syndrome is so well defined that this condition is one of the easiest to diagnose.

The ductus arteriosus is a normal connection between the pulmonary artery and the aorta in foetal life. In the foetus pulmonary circulation is short-circuited by this. At birth with the lungs functioning, aortic pressure rises and the pulmonary pressure falls and the result is the two pressures are equal and so there is no circulation through the ductus arteriosus. Later in life as the systemic pressure rises, blood flows from the aorta to the pulmonary artery. Normally at birth ductus arteriosus undergoes obliteration. In some cases this may be delayed up to a year. In some where this fails to occur it results in patent ductus arteriosus. This may be the only abnormality and the rest of the cardiovascular system may be normal, or where the pulmonary artery is either very narrow or has no connection with the ventricle this may be the only means by which blood can reach the lungs. There is an inherent tendency for this to undergo obliteration and this tendency seems to fail in the cases where the patent ductus persists after the second year of life. This shunting of the blood through the ductus causes a strain on the left ventricle to start with. As the pulmonary artery carries more blood the right ventricle has to overcome this pressure to put the blood into the pulmonary artery. Result is ultimately right ventricular strain also. Though the books describe the condition as common in females the majority of my cases were among males.

(1) *Clinical findings*:—I have noticed that there was invariably hemi-hypertrophy of the right side. Symptoms vary depending on the site of the ductus. Where it is large it may be silent but produce symptoms of dyspnoea, palpitation, large heart and stunted growth. Where the communication is narrow it may be discovered in the

course of a routine investigation. In this condition cyanosis does not occur till failure sets in.

(2) *Cardiac findings*:—Invariably the apex is displaced downwards and outwards showing an enlarged left ventricle. Apical thrust is forcible and heaving in character showing the elevated pressure. A continuous thrill may be felt in the pulmonary area. Percussion shows an area of dullness to the left of the sternum in the second intercostal space. Auscultation gives the most characteristic evidence. Over the pulmonary area, a rough continuous murmur is heard—called variously ‘machinery murmur’ ‘train in the tunnel murmur’ ‘humming top murmur’—denoting a continuous flow of blood from the aorta into the pulmonary artery. The murmur though continuous has usually a systolic accentuation, occasionally it may be a diastolic accentuation. In infancy there may be only systolic murmur and only as the child grows the murmur becomes continuous. The systolic murmur is conducted up the neck along the carotids and the diastolic murmur along the left border of the sternum. The murmur may also be heard in the back in the interscapular area. Both the murmur and the thrill are better made out in the recumbent position.

The pulse is highly suggestive in this condition. There is increased pulse pressure and so a collapsing type of pulse is felt. With exercise a fall of pressure occurs.

(3) *X-ray findings*:—The heart shadow shows wide variation. Constantly there is prominence of the pulmonary artery. This may not always be evident. Enlargement of the left ventricle also occurs. Screening may show the hilar dance. There is no enlargement of the auricles.

(4) *Electrocardiograph*:—This is not of much value in this condition. It generally shows left ventricular preponderance. Diagnosis is by the continuous thrill and murmur in the pulmonary area.

The condition has to be distinguished from rheumatic heart diseases with aortic regurgitation. The earlier age incidence, the hemi-hypertrophy, prominent pulmonary conus, and the other areas being normal distinguish this condition from rheumatic heart.

Inter-auricular septal defect.—Here the murmur is never continuous. Radiologically the enlargement is of the auricle and not of the pulmonary artery alone; hence the pulmonary conus shadow extends into more than one interspace. It might even extend up to three interspaces rarely.

Complications:—Sub-acute bacterial endocarditis is a very common complication in this condition. Generally it starts at the pulmonary artery end of the ductus. So emboli frequently occur in the lungs resulting in a condition which is frequently diagnosed as recurrent attacks of pneumonia. Aneurysmal dilatation of the ductus

can occur but is rare. Rarely aneurysm of the pulmonary artery may occur.

TREATMENT.—Ligature or excision of the ductus offers a cure. Indications for the same are stunted growth, gross cardiac enlargement, a low diastolic pressure (as it is likely to affect the coronary circulation), cardiac failure and bacterial endocarditis. Even after the onset of bacterial endocarditis, patients may be operated with benefit. So long as the valves are free, a cure may be expected.

The most important contra-indication for ligature of the patent ductus is where it is a compensatory feature as in pulmonary stenosis or pulmonary atresia.

The operation is best done about the fifth year. Immediately after the operation rise in pressure occurs but this gradually falls to normal level. The heart size also returns to normal in about six weeks.

PROGNOSIS:—In uncomplicated cases the prognosis may not be serious and may allow the patient a normal span of life. If marked cardiac enlargement or bacterial endocarditis occurs, it greatly cuts down life expectation if operation is not performed. I have had one case of patent ductus operated last year on a boy of three years of age. He was getting repeated attacks of bacterial endocarditis. At the time when I advised operation the boy had a just palpable spleen and he had the third attack of ‘pneumonia’. Evidently these were pulmonary infarcts. Each time he showed very good response to Penicillin and Sulpha therapy. He had a thrill felt over the pulmonary area which was not continuous but occurred only in the systolic phase. The heart was enlarged, particularly the left ventricle. Auscultation showed a continuous murmur. B. P. was 140/80. Exercise test was not done as the boy was not co-operating well. I advised operation even though he was only three years, on account of the repeated attacks of bacterial endocarditis. At operation it was noticed the ductus was wide and closure by artery forceps for two minutes did not cause any distress or cyanosis and the same was ligatured. Uneventful recovery occurred. This boy has been under my observation now for a year and a few days. No further attacks of bacterial endocarditis have occurred. This boy in addition to patent ductus exhibited well-marked hemi-hypertrophy of the right half of the body, the length of the extremities showing a difference of more than $\frac{1}{2}$ ". Ever since I saw this case I have been observing this difference between the two halves of the body in nearly all cases of patent ductus. The difference is not as gross in all cases as in this case. In some, the little finger of the left hand alone shows the marked difference. I think it is a useful point in difficult or atypical cases.

Last month a child was brought into the hospital with a history of repeated attacks of pneumonia. Examination showed this to be a case of patent ductus and no other abnormality. The family history

was followed up and the study showed that the mother aged 32 had a big heart, particularly the left ventricle, feeble diastolic murmur over the pulmonary area. Screening showed a prominent pulmonary conus. Her first daughter was 14 years of age with no clinical findings but with a prominent pulmonary conus.

Her second daughter was aged 8 years, again with no findings, but screening showed prominent pulmonary conus with enlarged left ventricle.

Then came the son aged 3 years described above. Her husband on screening showed aortic aneurysm of a good size which was clinically silent.

This lady of her own accord brought her brother's children, a boy and a girl. The girl aged 11, had a systolic and diastolic murmur over the pulmonary area. Screening showed prominent pulmonary conus and enlarged left ventricle.

The boy aged 8 years showed signs and radiological features typical of patent ductus.

This family illustrates very well the familial nature of the condition.

Patent intra-auricular septal defect:—This is a common congenital defect. Occurrence is more in women than in men. The shunt is from the left auricle to the right. Due to the increased filling of the right side of the heart, the right auricle, the right ventricle, the pulmonary artery and its main branches are greatly enlarged. With the onset of failure the shunt is from the right side. Clinically, the cases may be silent. There may be a systolic murmur in the second left interspace.

Radiological diagnosis:—large right ventricle and bulging of the left pulmonary artery with the large branches of the right deviation visible to the right. Pulsation in the pulmonary artery (the hilar dance) is usually clearly seen. But it is not pathogenic of this condition as it occurs with pulmonary regurgitation and patent ductus arteriosus. The aorta appears small. This condition must be distinguished from patent ductus arteriosus as there is a definite surgical relief for patent ductus but not for this condition.

Pulmonary stenosis:—Cyanosis is usually evident from birth. Main symptoms are shortness of breath on exertion and paroxysmal attacks of dyspnoea accompanied by cyanosis. These attacks precede the persistent cyanosis. Epistaxis is frequent. Usually pulmonary stenosis occurs with interventricular septal defect.

Physical findings:—Harsh systolic murmur and thrill in the second and third interspace close to the sternum. The murmur may be conducted in the neck. There may also be dullness over the second left interspace. The child assumes the characteristic squatting posture when tired.

X-ray:—Absence of normal pulmonary conus and upon fluoroscopy there is absence of pulsation of the hilar shadows.

Congenital Heart Diseases in General Practice
R. Subramaniam

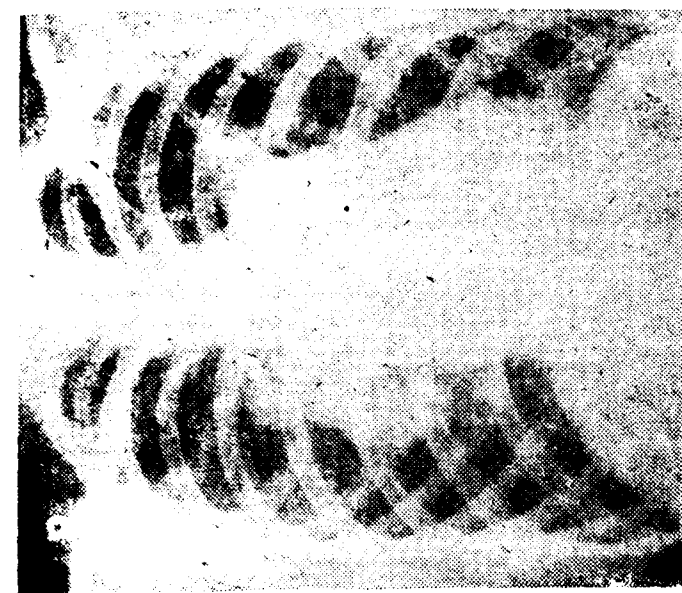


FIG. 2.

1-2-1951—Name: C., aged 20 years, male. Inter-auricular septal defect. Congenital heart with enlarged conus and pulmonary arteries.



FIG. 1.

29-1-1951—Name: A., aged 11 years, female. Patent ductus arteriosus. Enlarged heart. Vessel area wide. Note the pulmonary congestion.



FIG. 4.

15.11.51—Case of coarctation of aorta. Note the notches on the under surface of the ribs. Patient has scoliosis.

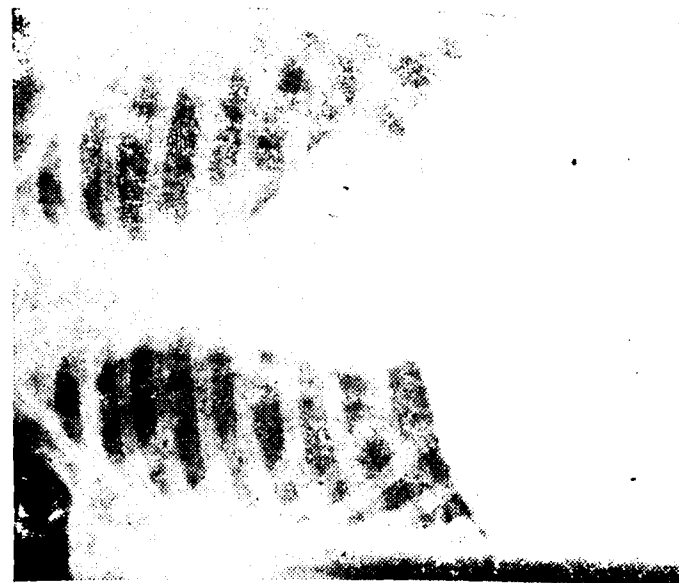


FIG. 3.

7.2.1949—Case of Fallot's tetralogy proved by operation

Dysenteries in Hyderabad S. Venkateswara Rao

FIG. 1—A case of liver abscess. Skiagram showing elevation of Rt leaf of diaphragm. [Vide page 22.]

FIG. 2—A case of pulmonary amebiasis 10.4.48. Rt lower lobe shows an opacity. [Vide page 25.]

FIG. 3—A case of pulmonary amebiasis 5.5.48. Note the opacity Rt lower zone clearing. [Vide page 25.]

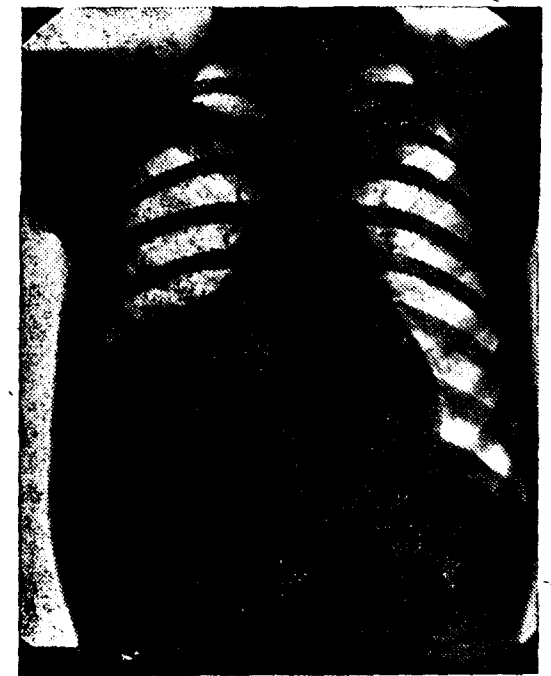


FIG. 1.



FIG. 2.



FIG. 3.



FIG. 5—A case of liver abscess—Simulating in radiological appearance, subphrenic abscess. [Vide page 23.]



FIG. 4—Abscess left lobe of the liver, pushing the stomach to the left and downwards. [Vide page 23.]

Treatment is essentially operation. The operation consists of anastomosing the subclavian with the pulmonary artery. Indications for operation are—

- (1) Lack of adequate circulation to the lungs.
- (2) The availability of systemic artery.
- (3) The existence of pulmonary artery.
- (4) A pressure greater in the systemic than in pulmonary artery.
- (5) Structure of the lung should permit of collapse of one lung and closure of one pulmonary artery for some minutes.
- (6) A heart of such size and function that it can adjust to the altered circulation.

Absence of hilar shadows is a pre-requisite for operation as their presence is a strong indication of adequate or excessive pulmonary blood pressure and indicates high pulmonary pressure. So also enlarged heart is a contra-indication for operation.

Cardiac arrhythmias are dangerous. Partial heart block with the heart slowing with exercise is particularly dangerous. As at the end of the operation the heart normally accelerates to adjust to the increased blood flow slowing of the heart rate at this time is liable to lead to cardiac dilatation and standstill.

Patent inter-ventricular septal defect.—It is one of the commonest congenital defects. The typical sign is a harsh systolic murmur with or without a thrill heard best, midway between the mitral and tricuspid areas. The murmur may be heard all over the precordium and even on the back. This does not cause any inconvenience and patients may go through life without any handicap. Radiologically a globular or pear-shaped shadow is seen.

I have not attempted to deal with all the congenital defects, but only with the most important of them and even there I have particularly chosen to stress the conditions, which if detected are subject to operative interferences.

References:

1. East and Bain—Recent Advances in Cardiology. —British Heart Journal, 1948, pp. 65-79.
2. Stroud—Cardiology, Vol. 1.
3. International Conference of Physicians
4. Tausig—Congenital Heart Diseases.
5. Brown—Congenital Heart Diseases.

S. O. Balfour Ross,
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Aureomycin for Granuloma Inguinale

Zises and Smith treated 17 patients with granuloma inguinale by giving 500 mg. aureomycin orally every six hours for 12 days or until 25 gm. had been given. Smaller doses were given in a few cases, where tolerance was less, and the treatment continued for 16 days. Nausea with and without vomiting occurred in these 8 cases and aluminium hydroxide gel was given with the aureomycin. Healing occurred in all cases but one patient had a relapse and one was retreated on account of incomplete healing.—(Arch. Dermat. Syphil., 62, 642, 1950).

COMPLICATIONS OF GASTRIC AND DUODENAL ULCER*

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FOR the sake of convenience the complications of gastric and duodenal ulcers may be grouped as follows:—

I. Pre-operative.

II. Post-operative.

The post-operative complications are again subdivided into:—
(a) Immediate complications occurring within two weeks of the operations and (b) Remote complications.

Now let us consider the complications one by one.

I. Pre-operative. 1. *Haemorrhage*:—It is the commonest form of accident of gastric and duodenal ulceration. It may be of any degree from the slightest hæmorrhage to the more common profuse hæmatemesis which at times may be so severe as to endanger the life of the patient in a short time.

In chronic peptic ulcers minute hæmorrhages are nearly always present as shown by the presence of occult blood in the stools and the black colour of the fæces. Such bleeding comes from the small vessels in the ulcer. This may be due to some erosion of the arterial wall of the stomach and does not endanger life.

In case of rupture of a large vessel, profuse bleeding occurs and in 15 to 20 minutes 2 to 3 pints of blood may be lost. Due to profuse bleeding a rapid distension of the stomach takes place and the patient begins to vomit blood, consequently the patient feels weak and faints from loss of blood. When there is severe bleeding sudden fall of blood-pressure, perspiration, cold and clammy extremities are noted.

TREATMENT.—Till recently the treatment of peptic ulcer hæmorrhage was medical, consisting of starvation, injection of Morphia gr. $\frac{1}{4}$ and gradually increasing the diet after the bleeding stops. Later blood transfusion was added. First it is given rapidly and then by the slow and continuous drip method. Operative treatment was undertaken for those cases which did not show any improvement, and such a treatment was attended with high mortality. The mortality rate with starvation treatment was from 7% to 12%.

Then the treatment was reversed by three-hourly feeds of light soft diet, including tea, cocoa, bread and butter and soup and alkalies with iron and the result was found to be encouraging and the death rate had fallen to 2% to 3½%.

* Paper read before the Southern Branch of the Medical Association of Travancore and Cochin.

The effective medical treatment at the present time is the combination of prompt feeding with diet containing high vitamin value together with iron and alkalies and the use of anti-spasmodics, moderate doses of Morphia and blood transfusion by drip method. This treatment has been followed for more than ten or twelve years and has reduced the mortality rate of peptic ulcer hæmorrhage to 2% to 3% according to Meulengracht.

In the year 1946 a patient was brought to this hospital with a hæmatemesis and he gave the history of the symptoms of gastric ulcer. He was given immediately the above mentioned treatment. He was given an injection of Morphia $\frac{1}{4}$ gr., liquid diet by mouth, and blood transfusion from his brother and four-hourly injections of Kapalin. He stayed in hospital for two weeks, and improved in general health; and he was discharged with instructions that he should be operated within a month's time when he had improved in general health. But the patient never returned and nothing was heard of him afterwards.

Surgery has a place in the treatment of peptic-ulcer-hæmorrhage when there is no response to the best medical treatment. It will be a good procedure to try medical treatment for 24 hours and if the patient does not show signs of improvement, operation may be advised. Sometimes the condition of the patient becomes worsens so much that surgical treatment has to be undertaken immediately. If the patient's condition is very bad the operation should be done within 24 hours as the operative procedure offers the only though a slender chance for the patient to live.

In the method of surgical treatment one must be on the lookout for shock during anæsthesia and post-operative cares and for post-operative pneumonia.

The operation is one of choice, gastrectomy with removal of the ulcer. If the patient's condition does not permit that, it has been suggested the safer thing to do is to ligate the visible blood-vessels all round the ulcer and to apply mattress sutures under-running the whole ulcer. To combat the shock, give transfusion of blood or continuous drip of saline or saline with glucose. Ryles tube may be passed to relieve the distension of the stomach and to prevent vomiting. In case of post-operative pneumonia, a course of Penicillin injections of 50,000 units 4 hourly for 3 to 4 days will improve the patient's condition.

II. *Perforation*.—It is another pre-operative complication of gastric and duodenal ulceration. It is, in the words of Dr. A. K. Manro, ("one of the most agonising catastrophies for the patient and a challenge to the surgeons, because the majority of cases are young middle life and often useful members of the community or an important member of the family"). It is commonly met with in private practice. The patient usually comes to the hospital very

late after trying all other treatments in his house. But in towns and cities patients may reach the hospital earlier because of transport facilities. In country-parts it is not so. When such patients come to the hospital they are in a very bad condition with sunken eyes, cold extremities with perspiration and a rapid pulse. Operations done on such patients end nearly always in failure. On the other hand, patients who reach the hospital earlier and get operated have a better chance to live.

In the year 1946, we had four cases of perforation, 3 of them came to the hospital between 6 to 10 hours after perforation. They improved very well after operation and had uneventful convalescence without further complications. One who came late died a few hours after operation.

We cannot definitely say what percentage of ulcers perforate, because we had four cases of perforation in 1946 and there was not a single case till 1949 though we used to have 150 to 200 gastric operations a year. According to Dr. Somervell who is an authority on gastric operations, 10 to 15% of cases perforate. Perforation may occur mostly between 20 and 50 years of age. There are cases reported of perforations persons of 60 to 80 years. In our records the youngest is 24 years of age and the oldest 70. Men are more affected than women.

It is also a much disputed fact whether perforation is common in gastric ulcer or in duodenal ulcer. All cases seen in this hospital were perforations due to duodenal ulcer. It is also reported that out of 54 cases of perforations, 6 were gastric and the rest duodenal ulcers.

Again, there is the controversial question whether acute or chronic ulcers perforate. Often, patients with perforations give a long previous history which will help us to establish the fact if the ulcer is acute or chronic. After going through various reports it has been found that chronic ulcers are responsible for the majority of perforations; the acute ulcers may rarely also perforate.

It is also a known fact that anterior ulcers perforate and allow the contents of the duodenum or stomach to get into the general peritoneal cavity. The posterior ulcers may perforate but they do not usually perforate because of the anatomical relation of the lesser sac and the contents of the stomach are not poured into the abdominal cavity.

Dr. Bagar of Sweden has pointed out that perforation of gastric ulcer or of duodenal ulcer occurs mostly in tobacco smokers. We cannot say how far it is true and it would be interesting to find out the percentage of smokers developing perforations.

SYMPTOMS.—There is sudden intense pain in the upper abdomen and it is acute and agonising. When the contents of the

stomach and duodenum are poured into the abdominal cavity the pain spreads downwards in the right iliac fossa, in the case of perforations due to duodenal ulcer. One will suspect at this stage acute appendicitis. The temperature becomes subnormal with cold and clammy extremities and perforation and weak pulse. On physical examination the abdomen does not move with respiration and there is a board-like rigidity in the upper abdomen with pain all over. After a few hours the patient seems to be improving. The pulse rate slightly improves but the laboured breathing, thirst and the rigidity continue and he is tender all over the abdomen with the tenderness greater over the area of perforation. When peritonitis sets in, the pulse-rate begins to increase from 110 to 120 or more and the respiration remains thoracic in type.

Diagnosis may not be difficult when the patient gives a sudden onset of pain in the upper abdomen and a previous history of recurring abdominal pain with some definite relation to food and vomiting. Sometimes perforation may be confirmed by an X-ray taken with the patient sitting up; a crescent of gas under the diaphragm will be manifest.

TREATMENT.—Depends mostly in instituting early surgical methods. Often cases of perforation, as I said before, come late to the hospital and are invariably fatal. There are cases reported of medical treatment. This is only in places where there is no surgical help possible.

It is always a good rule to give morphia 1/4 gr., as soon as the diagnosis is made. Ryles tube is passed through the nose to reach exactly the lowest part of the stomach, fitted to the suction apparatus and emptied frequently and the patient is turned to lie down on the left side so that no more fluid escapes through the perforation into the abdominal cavity. If there is solid food present, it will be impossible to aspirate through the Ryles tube; then a stomach wash will do better. Intravenous saline or saline with glucose infusion should be given by the continuous drip method. Infusion of plasma may be given first if available before saline or glucose. Stomach should be kept empty and rectal saline may be given, and the patient should be given rest for from 45 minutes to 1 hour. If the patient's condition is not satisfactory, operation should immediately be done.

The patient should be removed to the operating room with Ryles tube in the nose and the intravenous infusion, both *in situ*. Anaesthesia is one of choice. Regional and local anaesthesia may do, but spinal anaesthesia is more helpful to the surgeon in opening and closing the abdomen.

Regarding the operation, we close the perforation with two or three catgut stitches and fix over it the omentum by other stitches. In gastric ulcer perforations, gastrectomy is the operation if the

patient's condition is satisfactory. If not, close the perforation by stitches with the omentum. In the case of perforated duodenal ulcer without obstruction closure of the perforation may be enough, and obstruction gastroenterostomy is also done in addition to the closure of the perforation.

Post-operative.—The patient is returned to the ward with continuous infusion. Ryles tube may be kept on, if the stomach requires emptying. Morphia may be given to quieten the patient; it can be repeated if required after 4 hours. Fluids should be given sparingly just to wet the throat; continuous rectal saline should be continued. If the return fluid in the Ryles tube is clear more fluid can be given by mouth; leave the patient on fluid diet for 4 to 5 days and after the fifth day gradually return to normal diet.

If there is lung complication, Penicillin 3 hourly or sulphatriad as also 20% alcohol intravenous injection 15 to 25 c.c. is given. The alcohol is believed to be a stimulant and nutriment.

III. Pyloric stenosis is a common complication and sequela of duodenal or pyloric ulcer. Pyloric spasm may be constant or intermittent due to the irritation of the ulcer in the neighbourhood. It may be due to the oedema caused by the inflamed ulcer. It may be due to cicatrix of an old duodenal ulcer. Such cases give the signs and symptoms of duodenal ulcer and the X-ray examination will show the considerable delay in the emptying of the stomach.

TREATMENT.—Posterior gastro-enterostomy is the operation generally performed. If the test-meal shows high acidity of the fasting juice, posterior gastro-enterostomy may be combined with vagotomy.

IV. Carcinoma of the stomach.—It is a common complication and it is often associated with chronic duodenal ulcer or gastric ulcer. Early carcinoma of the stomach is often discovered by accident at laparotomy.

A woman 45 years of age was admitted to the hospital in April, 1950 with vague symptoms of pain and discomfort in the upper abdomen. Fractional testmeal findings were within normal limits. X-ray examination showed duodenal ulcer with stasis of barium in the stomach. On opening the abdomen it was found that she had early carcinoma of the stomach. So partial gastrectomy was done removing also the glands in the neighbourhood.

Patients with chronic gastric or duodenal ulcer coming to hospital with great pain and discomfort and no appetite for food invariably show signs of early cancer; such patients come to the hospital after suffering for 3 or 4 months with such symptoms and trying other treatments. During that time the disease becomes advanced with complete loss of appetite. Fractional test-meal shows

very low acidity. X-ray shows complete stasis of barium in the stomach with broken continuity of the mucous membrane at the pyloric end of the stomach. Such cases are often inoperable with glands all over the abdomen and on laparotomy even palliative posterior enterostomy is impossible.

TREATMENT.—In an early cancer of the stomach gastrectomy is the best treatment. Medical treatment is not helpful; perhaps there may be apparent remission of symptoms in the beginning but actually the disease progresses. There are cases treated medically for gastric ulcer with apparent relief of the symptoms but they usually returned with cancer of the stomach and some had too hopelessly advanced to benefit by surgical treatment. Gastrectomy is the only possible treatment, if it can be done. Generally there is 5 to 10% mortality in gastrectomy for gastric ulcer. If the operation is not done, there may be risk of hæmorrhage, perforation etc. The patient with suspected gastric ulcer should be advised to have a careful follow-up examination when he is under medical treatment.

IMMEDIATE COMPLICATIONS are those that occur within two weeks of the operation.

1. **Hæmorrhage:**—Occasionally hæmorrhage is a common complication after operation on the stomach. The patient complains of discomfort in the stomach, thirst, and an increased pulse-rate from 100 to 120. The increased pulse-rate is noticed in cases of distended stomach. So the nurses are given instructions to pass a stomach-tube even without the specific order of the medical officer, if the pulse rate is 100 or above, and to report about the nature of the contents in the stomach, whether there is blood or bile. A stomach wash is done if there is any kind of bleeding and the patient is given Calcium chloride 10% 10 cc. intravenous or Coagulen or Kapalin 4 hourly injections. Ryles tube should be continued through the nose. No operation is necessary. If we rush to operation, we endanger the life of the patient.

2. **Shock:**—It is not a common complication in posterior gastro-enterostomy. It is very common in gastrectomy. Give the patient Morphia 1/6 gr. to make him quiet. Give glucose saline infusion by drip method (continuous drip) and the hot-water bottle to keep him warm.

3. **Dilatation:**—Dilatation of the stomach is a complication of gastric operation. It occurs mostly in gastrectomy, vagotomy and occasionally after posterior gastro-enterostomy. The dilatation causes tension on the anastomosis and if allowed to continue it leads to leakage. Leakage may also occur from the anastomosis either due to faulty suturing or from stretching of the anastomosis by subsequent ileus. The leakage leads to peritonitis.

When there is dilatation the pulse-rate goes up to 100 or 120 and the patient complains of belching and thirst. The stomach is

filled with thick bile. When a stomach tube is introduced 3 to 4 pints of bile may be drawn out.

Dilatation of the stomach is prevented by a stomach wash and then by an indwelling gastric suction tube. (i.e.) a Ryles tube is passed through the nose and fitted with a suction apparatus and the tube may be kept on for 2 to 3 days till the gastric secretion is normal. To compensate the fluid drawn out by the Ryles tube glucose saline or plain, saline should be given by continuous drip, per rectum or by intravenous injection.

4. *Vomiting*:—It is another complication after gastric operation. Nowadays it is very rare owing to the use of continuous gastric aspiration by Ryles tube or stomach tube. When vomiting occurs, it is safer to give fluids per rectum especially normal saline and vitamins by injections—Vomiting is due to paralytic ileus of the small intestine. Sometimes vomiting may be due to acute obstruction of the small intestine in the neighbourhood of the stomach.

A case of gastric ulcer was admitted to this hospital and gastrectomy was done to him. After six days of the operation the patient began to vomit whatever he took by the mouth. He had severe pain in the abdomen, the pulse-rate increased, eyes became sunken with an anxious look. Extremities were cold with perspiration. Enemas and stomach-washes were tried, but there was no improvement. So laparotomy was done and there was a volvulus of the small intestine which had become gangrenous.

Another case of gastro-jejunal ulcer was operated two months ago; gastrectomy was done and on the 14th day he started projectile vomiting. Whatever he took by the mouth he vomited. We tried enemas and stomach-washes and all without improvement. On laparotomy it was found that a band was crossing and pressing over the small intestine in the neighbourhood of the anastomosis. The band was cut and the wound was sewn with tension stitches along with ordinary skin-stitches. Afterwards the patient had no vomiting; he improved in his general condition and went home cured.

5. *Chest-complications* are very common after operations on the stomach. They are more common in the rainy and cold seasons than in summer. The chest complications are bronchitis, pneumonia and broncho-pneumonia. Bronchitis is the most common complication. It causes pain in the chest on coughing. It is often noticed that gastric operations done with spinal anaesthesia lead to the above complications. There may be a mild or severe form of bronchitis, broncho-pneumonia or lobar pneumonia. There may be a rise of temperature on the same day of the operation and we may not attach much importance to it, thinking it to be a reactionary-fever. If the fever is continuous from the second day with chest-pain, and with breathing difficulties, then we diagnose cases as bronchitis or pneumonia.

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BASLE - SWITZERLAND



TREATMENT:—We generally give intravenous daily injections of twenty per cent alcohol 15 to 20 c.c. for three days. We give also Sulphamethazine (two tablets) four-hourly. Often mild cases of chest complication get well on the second day with injections of alcohol. Alcohol, as I said previously, is a stimulant and a nourishment to the body. In severe cases of pneumonia we resort to Penicillin treatment 25,000 units 3 hourly for 2 or 3 days till the temperature comes down to normal. When the temperature is normal it is not good to suppress the cough and the patient is, therefore encouraged to cough out the sputum. A stimulating expectorant will be helpful. As a result of bronchitis or pneumonia there may be pleurisy with effusion and empyema may result in some cases. In cases of effusion repeated aspiration will do good to the patient. In cases of empyema aspirate the pus, and put Penicillin solution into the thoracic cavity; repeat this treatment for a few days. If the empyema still persists resect a rib and drain the contents of the thoracic cavity with a tube, till no discharge comes out. Along with these treatments injection of Penicillin may also be continued.

6. **Infection:**—It is another complication after abdominal operations. It is due to want of care, during the operation in preventing the gastric contents from falling on the wound and due also to imperfect pre-operative preparation of the patient. Sometimes it may be from the catgut used in stitching. We often notice infection of the wound in the form of a stitch abscess on the 8th or 9th day or after the 10th day after the stitches are removed. When we open the abscess we find a catgut knot or a silk ligature. After removal of these the wound heals quickly. We now use catgut only for closing the peritoneum and silk for the fascial stitches interrupted and silk-worm-gut for closing the skin. By this procedure, there have been fewer infections than before. But we are not in a position to say definitely if the above technique is advantageous over the previous technique.

In case of infection due to defective pre-operative preparation of the patient, we now use Cetavlon in addition to the soap and water used for cleaning. It is a good antiseptic and post-operative infection is rare.

7. **Diarrhoea:**—This is another complication after gastric operations. It commonly starts 5 to 7 days after the operation. It may be bacterial in origin or due to want of hydrochloric acid in the stomach. Increased intake of fluids after operation in obstructed duodenal ulcer cases is often responsible for the diarrhoea. Some cases do well when we administer acid mixture. Sulphaguanidine two tablets four hourly for two days may be given in cases of bacterial infection. If the diarrhoea is due to amebæ treat the patient with Emetine hydrochloride and entero-vioform etc.

8. **Burst abdomen:**—It is a rare complication. It is often due to post-operative cough and also due to quick absorption of the catgut.

When we get such cases we inject locally Novocain all round the burst wound and then open the wound, apply Proflavine powder and put tension stitches including all layers of the abdominal walls, then apply the skin stitches and allow the patient to be in complete rest in bed.

9. *Anaemia and dropsy*:—Both often go together as a post-operative complication. Patients often come to us thin and emaciated suffering from pain and without proper food, due to ulcer in the duodenum or stomach. Such patients are anæmic, hæmoglobin is 40 to 60%. After operation, patient develops dropsy due to want of vitamins in the food. Urine may be normal. With iron tonics, vitamin tablets and liver extract injections, patients improve.

Remote complications.—1. *Incisional hernia*:—It is often due to the infection of the wound. With a good pre-operative technique infection of the wound can be avoided. Sometimes the post-operative cough is another cause. Buried silk stitches can also cause infection of the wound which continues to discharge pus through a sinus till they are removed, and consequently some cases result in incisional hernia. The treatment is surgical at a later date.

2. *Gastro-jejunal ulcer or anastomotic ulcer*:—This complication often comes on 2 to 3 years after gastro-enterostomy. Sometimes it occurs even within a year. This occurs in about 8 to 10% of cases after the primary anastomosis, and may be due to high gastric acidity in young men or gastro-jejunostomy done in cases where there is duodenal ulcer without obstruction, or gastro-jejunostomy done very high up in the stomach instead of doing it in the dependant part of the stomach; by so doing the constant dragging of the anastomosis causes the ulcer. It may be also due to insufficient gastro-jejunal opening. That causes contraction of the stoma and obstruction of the food.

Patients come with pain on the epigastrium with or without vomiting. X-ray examination will show the place of pain on the stoma.

TREATMENT.—The medical treatment of the anastomotic ulceration has proved disappointing. There may be slight relief of symptoms but it does not effect a cure.

Surgical treatment on the other hand offers a good chance of cure. The operation is sub-total gastrectomy removing a large portion of the acid bearing area of the stomach and closing the jejunal stoma with or without resection.

If the gastroenterostomy is done without proximal loop it will be very difficult to separate the proximal portion of the jejunum. If the loop is present the separation of the anastomosis is much simpler. Great care must be taken not to damage the mid-colic vessels. If the jejunal stoma cannot be closed, resect the jejunum

and do end to end anastomosis. Then remove the stomach including the gastric stoma. The portion of the intestines beyond the jejunal anastomosis is anastomosed with the stomach. In some cases the posterior gastro-enterostomy works well with the anastomotic ulcer. Vagotomy is worth trying.

3. *Gastro-jejuno-colic fistula*:—It is a very serious but remote complication of gastric and duodenal ulceration. There is a free communication between the stomach, jejunum and transverse colon. Any food taken by mouth passes through the stomach, to the colon and excreted undigested leaving the patient to starve to death.

SYMPTOMS.—The patient gives a history that he had been operated for some gastric trouble and after the operation he was feeling better for a year or two, then he started pain which was relieved by food or by some alkaline mixture. The pain was mostly in the upper abdomen on the left side. This pain was continuous for sometime then grew less intense for a while. He then had frequent loose motions which contained undigested food. X-ray examination showed that barium passed through the fistula into the colon.

TREATMENT.—This is only surgical and the mortality is very high. Before operation the patient should be given absorbed food such as glucose, and a few transfusions of blood or plasma. Anæsthesia given is regional and local. On opening the abdomen the adhesions are separated and the colon divided on either side of the fistula and anastomosis is done end to end or side to side without causing any tension on the ends of the colon. Then the jejunum is divided on either side of the stoma and anastomosed end to end. After doing this, the stomach is free to move with its cut ends of the colon and jejunum; then we do the gastrectomy a little above the anastomosis in the usual way. According to the above technique two cases were operated by me; one died and one survived.

Treatment of Schizophrenia with Histamine

Dr. Alvaro V. Gaviria treated 30 patients with various types of Schizophrenia, at the Mental Hospital Bogota, using histamine phosphate. The average duration of treatment was 30 days. The doses ranged from 1.25 to 2 mg. The first dose for each day was dissolved in normal serum while the second was in a 2% solution of methoxylate polygalacturonic acids of which 0.5 to 1 cc. was injected. The action lasted for 3 hours by this method. Of the 30 patients treated total remission was obtained in 14 and partial in 4 cases. The remaining 12 had no remission. There were no side reactions and the patients had no convulsions. It can therefore, be safely used in patients whose organic condition does not permit the use of convulsants. Both the daily doses could be given in normal serum itself.—(*Trans. Med. Facul. Colombia*, 1951).

DYSENTERIES IN HYDERABAD*

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DYSENTERIES are perhaps the most common bowel diseases occurring in our State. It is worthwhile to review these diseases every now and then.

Incidence.—Undoubtedly bacillary dysenteries are the most common as far as outpatient clinics are concerned. Bacillary dysentery is an acute infectious disease running a course of a few days and gets cured by itself. But the inpatient statistics give a different picture.

Thus—(1) In the medical side of Sultan Bazar Hospital, Hyderabad, Deccan, 1st December 1944 to September 1948—Total in-patients on Medical side 3885 :—

Acute Bacillary Dysentery	..	70
Amoebic Dysentery	..	64
Amoebic Hepatitis	..	56
Liver Abscess	..	25
Girardiasis	...	3
Food poisoning	...	1
Colitis of non-specific origin	...	13
Diarrhoeas	...	65

So incidence of dysenteric disorders is 297 out of 3885 or roughly 1 case out of every 13 is a case of dysenteric disorder.

Unfortunately the old case sheets from October '48 to December '49 could not be obtained.

Again from December '49 to April '50—247 cases were admitted. Out of which

Acute Bacillary Dysentery	...	3
Amoebic Dysentery	...	5
Amoebic Hepatitis	...	2
Liver Abscess	...	3
Colitis	...	2

The incidence works out to 1 in 16.

In the Osmania General Hospital from April '50 to 1st September '51, 2500 cases were admitted under my care. Out of which

Acute Bacillary Dysentery	...	14
Amoebic Dysentery	...	6
Amoebic Hepatitis	...	6
Liver Abscess	...	3
Colitis	...	2
Diarrhoeas	...	10

Here the incidence works out to 1 in 60.

The difference in the incidence between Sultan Bazar Hospital (roughly 1 : 15) and Osmania General Hospital (1 : 60) cannot be easily explained except on the basis that more chronic cases seek admission into the latter, than in the former.

* Read at 3rd Hyderabad Provincial Medical Conference at Raichur on 11-11-1951.

The proportion of amoebic to bacillary dysenteries is 75 : 87 = 1 : 1.2. If amoebic hepatitis and liver abscess cases are added to amoebic dysentery cases, the proportion is 170 : 87 = 2 : 1 i.e., the number of cases of amoebic dysentery and its complications that require our attention are double the number of bacillary dysenteries in the in-patient department of our hospital.

Amoebic dysentery.—Total 75 cases. Males 60. Females 15.

The lower incidence of amoebic dysentery in females explains the rarity of liver abscess in females. E.H. positive in stools = 48.

Clinically diagnosed, responded to Emetine 27. Two had hepatitis. There were 2 deaths. (1) A 60 year old man was cured of amoebic dysentery but died of coronary thrombosis. (2) A young man of 30 years was operated on the surgical side for appendicular abscess—the appendix was found to be gangrenous and was removed. Second day after operation, he passed pure blood which contained E. H. + + +. Started on Emetine. Died 2 days later. The surgeons should realise that an occasional appendicular abscess may be due to amoebiasis and to operate on such a case is to court disaster.

Age incidence :—There was no case of amoebic dysentery in children below 5 years. The youngest two cases were 5 years old. Never think of amoebic dysentery in children and infants. Amoebic dysentery can simulate many diseases.

1. *Peptic ulcer* :—The cases came with typical signs and symptoms of epigastric pain. Even the history of pain relating to food was present. Stools showed E. H. A course of Emetine cleared the symptoms.

2. *Malignancy of the rectum* :—A case was treated for malignancy of rectum for 10 months. Proctoscopic material showed E. H.* cleared with Emetine.

3. *Amoebic typhlitis* :—Can not only be treated as appendicitis, and often appendix is removed.

4. *Pure diarrhoea* :—Examination of stools if repeated once or twice shows E. H.

5. *Passing pure blood* :—Mistaken as piles or polyp. Examination of stools shows E. H.

Pericolicitis :—A common complication and may appear as a mass usually in R.I.F. which is slow in resolving.

TREATMENT :—For vegetative forms, Emetine is the drug of choice. So far no experience was gained with Aureomycin, Bacitracin or Terramycin, as these drugs are costly and beyond the means of an average patient. To prevent relapses, it is always advisable to impress on the patients the need for a continued treatment to eradicate the cysts. The following line of treatment,

subject to modification whenever necessary, is to be advised in every case :—

(1) Emetine $\frac{1}{2}$ gr. for 8 days. (2) Chinoform or Yatren or if these are not available Acriflavine (1:1000), retention Enema for 10 days. E.B.I. at night. (3) One week's rest. (4) Carbarsone 1 tablet B.D. for ten days. (5) Diodoquine or Embiquine for ten days. Examination of stools for 3 days and if possible sigmoidoscopy at the end of the treatment.

The more rigidly the above treatment is followed, the less will be the number of chronic cases left behind.

Amoebic hepatitis.—Sixty four cases. Males 52. Females 12.

Age incidence :—There was no case of hepatitis below the age of 20 years.

20-29 :—13 30-39 :—26 40-49 :—19 50-59 :—1 60-69 :—5

Maximum incidence is between 20-45 years; though 5 cases were seen between 60-69 years; 17 gave previous history of dysentery. One case showed icteric tinge of conjunctivæ. History of alcoholism is frequent, not invariably present. Nearly 80% of the cases have been screened and the right diaphragm was found to be raised and immobile. About 50% of the cases have been explored for pus and found to be dry. Treatment with Emetine has been uniformly good.

Liver abscess.—Out of 31 cases only one was a female and the rest 30 males. Here too, there was no case of liver abscess within the age of 20 years.

Age incidence :—20-29 :—4 30-39 :—8 40-49 :—14 50-60 :—5

Previous history of dysentery was given by 24 cases; some as recently as 1 or 2 months back; and some others 2 years back. Only 1 case showed active E.H. in the stools.

History of alcoholism is given by cent per cent of the patients including the one woman in the series. Perhaps alcoholism is an important ætiological factor in the causation of liver abscess. Liver damaged by alcohol forms a suitable nidus for entamobæ to multiply and produce abscess.

Position of liver abscess :—Right lobe—25 cases; Left lobe 6 cases.

Right lobe :—Liver is usually enlarged below the costal margin and tender. Right base usually shows impairment of P. note and diminished B sounds. X-ray shows raised Rt leaf of the diaphragm and on screening it is immobile (*Fig. 1, vide picture*). Exploration settles the diagnosis.

Left lobe :—These cases usually come as irregular swellings in the epigastrium simulating the tumour of the abdomen. One or

two cases provided an exercise in differential diagnosis. Barium meal examination of the stomach shows, that the stomach is pushed down and to the left, the real nature of the condition is evident on aspiration.

Two unusual cases are :—1. N. R., admitted on 10-2-1947, Pain right chest, feverishness. Liver tender. W.B.C. 20,000, P. 72, L. 19, E. 6, M. 3, X-ray No. 5839 of 5-3-1947 "Right diaphragm raised, there is a fluid level under the right diaphragm? subdiaphragmatic abscess" (*Fig. 5*).

11-3-'47.—Aspirated 300 c.c. of chocolate coloured pus. Emetine 1 gr. for 10 days.

28-3-'47.—Aspirated 50 c.c. Swelling cleared. Discharged cured after another course of Emetine.

2. Male, 50 years, admitted with a mass in the epigastrium of 3 months' duration. Barium meal of the stomach showed, that the stomach is pushed to the left (*Fig. 4*). Aspiration revealed 400 c.c. of chocolate coloured pus; and the mass disappeared. A course of Emetine cleared the condition.

Aspiration :—It is better to aspirate at the area of maximum tenderness. For the right lobe abscess the best place is in mid axillary line on right side; and for the left lobe abscess at the maximum area of tenderness over the swelling in the epigastrium. Direct aspiration of the left lobe is quite safe.

Complication after aspiration :—There were no complications. One case collapsed after removing 800 c.c. of pus which was blood stained; but he recovered with resuscitation treatment. Some complain of pain after aspiration.

Results :—Cured 27; died 3 cases; and otherwise 1. Mortality rate—10%.

A comment of fatal cases :—(1), A patient with general anasarca and poor general condition admitted with swelling, right lower chest in midaxillary area. 200 c.c. aspirated. Died next day.

(2) A patient with general anasarca with poor general condition was admitted with pain in the right lower chest. Pleural effusion in the right side was present. 350 c.c. of thick pus was aspirated. Patient died on the 3rd day after admission.

(3) A patient with a big cavity in the right lobe of the liver was repeatedly aspirated (1000 c.c.—1200 c.c. of pus) 9 times. He got steadily worse and died.

Every liver abscess patient suffers from malnutrition and chronic toxæmia; by the time he reaches the hospital, he usually shows slight œdema of the feet and anæmia. It is a good practice to give high protein diet by giving extra eggs in the diet, Cod liver oil emulsion; and sometimes liver extract injections if blood picture shows indication.

Early diagnosis and early treatment are necessary for good results. Many pitfalls in diagnosis can be prevented if every

practitioner makes it a point to explore the liver area, whenever a liver abscess is suspected. Usually a liver abscess case is treated as malaria or tuberculosis. If antimalarial drugs are given and if the low fever does not respond to them, it is well to think again and to revise the diagnosis if necessary.

One fact to remember is that *Entamoeba histolytica* do not form cysts in the tissues, but only in the lumen of the bowel. *Entamoebæ* are present in the vegetative form in the liver; and so Emetine is the drug of choice; 1 gr. dose, a course of 8 injections, is given and repeated if necessary. This and closed aspiration go together and form the treatment of choice.

Out of 27 cases, 10 cases were aspirated once, and twelve cases twice before they were cured. One case was aspirated five times before he was cured. Any case that requires aspiration more than once should be considered a serious case.

Open drainage:—Only one case required open drainage. After two aspirations, a tract was formed through the needle puncture. The cavity inside got secondarily infected. It was opened and then the patient recovered.

Open drainage is a thing to be avoided. The mortality rate with open drainage was as high as 80%, and after Rogers introduced closed drainage, the mortality rate came down considerably. At the present moment, persistent secondary infection of the abscess cavity not responding to antibiotic drugs is the only indication for operation.

Leucocytosis and temperature are not criteria that abscess is secondarily infected. There were 4 cases with leucocytosis between 16,000–20,000—Polymorphs predominating which recovered with Emetine and closed drainage. A remittent fever is always an accompaniment of hepatitis and abscess; it disappears by Emetine alone in the case of hepatitis and by Emetine and aspiration in the case of abscesses.

Side effects of Emetine:—The side effects of Emetine have been exaggerated. In this series no side effects were noted clinically, except local pain at the site of injection.

Two cases had jaundice. Van Den Bergh reaction of one patient was immediate direct—Both recovered with treatment.

Pulmonary amoebiasis.—Amil Chakravarty (1951) recently reviewed the literature on Pulmonary Amoebiasis and described his own cases. Following are the cases:

(1) David, male 49 years, was admitted on 7-4-'48. He was addicted to alcohol and cigarettes. One year back, he was admitted in S. B. Hospital, liver abscess was aspirated and treated with Emetine. Cure resulted. His general condition was however, very poor. He was bringing out large quantities of sputum which was offensive. The left and right lobes of the liver were enlarged and tender.

Exploration: dry; right base impaired P. note. Otherwise n.a.d. W.B.C. 3,200. P. 76, L. 16, E. 8, L. M.

X-ray of the chest No. 7,083 of 10-4-'48 "Rt lower zone shows an opacity? consolidation" (Fig. 2). Sputum—No. A.F.B.

Temperature 100–102°F every evening. Emetine $\frac{1}{2}$ gr. every day. Apyrexial 7th day. Expectoration dried up by 10th day.

X-ray on 5-5-'48. No. 8,112 "Rt diaphragm raised Rt lower zone opaque" (Fig. 3). Emetine $\frac{1}{2}$ gr. for 8 days.

X-ray No. 9,484 of 9-6-'48. "Rt lower zone shows mottling; Rt diaphragm raised". His general condition has improved; he has put up 15 lbs. in weight. He was discharged on 10-6-'48.

FOLLOW-UP:— $1\frac{1}{2}$ years after discharge, the patient is well and is attending to his duties normally.

2. Swamy, male 45 years, was admitted on 8-7-'48 with fever and pain in right chest for 2 months. He was treated for liver abscess and pain in right chest for 2 months. He was treated for liver abscess 2½ years previously in S. B. Hospital. Right front lower chest—Diminished P. note. Bronchial breathing; crepitations positive.

X-ray of the chest "Rt lower chest—a breaking consolidation found." W.B.C. 9,800, P. 64%, L.M. 4%, E. 4%, L. 28%. Sputum negative repeatedly for A.F.B. 12 lacs of Penicillin (20,000 units every 3rd hour) and Sulphadiazine had no effect. He was put on Emetine (1 gr. every day). With ten injections, he was almost completely cured.

Screening on 11-8-'51—"Right costophrenic angle obliterated" right leaf of the diaphragm raised and immobile.

A course of Emetine was repeated and the patient was discharged cured.

FOLLOW-UP:—Two years afterwards the patient was well and was carrying on his occupation as a book-seller. The above 2 cases were diagnosed as cases of pulmonary amoebiasis on the following grounds. (1) Previous history of amoebic liver abscess. (2) Dramatic therapeutic response to Emetine. (3) No other cause for the pulmonary condition was found.

There was no direct proof, as amoebæ were not found in the sputum. Indeed they have never been demonstrated in the sputum.

Acute bacillary dysentery.—For the treatment to be effective, it should be started very early. At the onset of the disease, the colon shows only hyperæmia; and the exudate forms later. If treatment is started early with chemotherapeutic drugs, e.g., Sulpha group, the progress of the disease can be arrested and the convalescence period shortened. Secondly, acute bacillary dysentery starts as an acute diarrhoea; and there is real danger of dehydration at this stage. Indeed 3 or 4 cases were admitted with thready pulse and they recovered with glucose saline intravenously.

Girardiasis.—There were 3 cases of girardiasis. Before they sought admission, they were treated both for bacillary and amoebic

dysenteries. Examination of the stools clinched the diagnosis. Mepacrine cured all these cases.

Chronic colitis.—There were 17 cases of chronic colitis. It is believed that many of them had their origin in neglected amoebic dysentery to start with. Sigmoidoscopy usually reveals a red mucous membrane with multiple pin point ulcers. Irrespective of the microscopic examination of the stools, they are treated on the lines of chronic amoebiasis. Retention enemas etc. at the same time improve the general condition of the patient, as these patients are usually haggard and emaciated. The immediate results were encouraging. The frequency of motions diminishes. The patients improved and put on a little weight. They were not however, followed up for a sufficient length of time.

Symptomatic dysenteries:—This name is given to those conditions like malignancy of the colon, mercury poisoning, toxic colitis etc. Where patients do come with symptoms of dysentery they are liable to be treated for dysentery alone, the basic condition being missed. The most important condition which is usually missed is malignancy. If the patient does not improve with treatment and when the patient is over 50 years age, it is always well to do a rectal examination, proctoscopy, and if possible a sigmoidoscopy also.

Conclusion.—It is said that "Microscope is more useful in topics than a stethoscope". It is true as far as dysenteries are concerned, if they have to be treated rationally.

It is hoped that the day is not far off when a microscope is made available at every taluq dispensary in our State so that dysentery cases can be diagnosed and treated early thus minimising as far as possible the economic loss to the wage-earner and his family and also shortening the period of convalescence. Public health authorities can reduce considerably the incidence of dysentery by providing protected water supplies and by reducing the fly nuisance.

Summary.—1. The incidence of dysenteries in the patients admitted to the medical side of Sultan Bazar Hospital, Hyderabad-Dn. and in Osmania General Hospital was investigated and compared.

2. Amoebic dysentery and its complications, amoebic hepatitis and abscess—their incidence and treatment have been discussed.

3. Two cases of pulmonary amoebiasis are described.

4. Early diagnosis of bacillary dysentery and early treatment are stressed.

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References :

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| 1. Anil Chakravarty—J.I.M.A., 399, Aug. 1951. | Diseases, 1945. |
| 2. Chatterji, P. K. and Sen Gupta, S.—J.I.M.A., 18:481, 1949. | 5. Mukherji, S.—Ind. M. Gaz., 84:250, 1949. |
| 3. Chaudhuri, R. N. and Ray Chaudhuri, M. N.—Indian, M. Gaz., 81:66, 1946. | 6. Rogers, L. and Megaw.—Tropical Medicine. |
| 4. Manson Bahr, P.—Manual of Tropical | 7. Singh Balbir—Ind. M. Gazette, 84, 1949. |

CLINICAL ASPECTS OF SALT-WATER METABOLISM*

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SALINE and glucose infusions are being used in every day practice. As Marriot has very aptly said "Water and Salt can be so used that they can achieve seeming miracles or they can be so misused that they lead to a fatal issue." It is necessary therefore to understand the rationale of such an important therapeutic measure. Sodium chloride and water are important constituents of the human body. Sodium chloride fulfils many functions in the body. The following are important ones:—

- (1) Exchange of water between cells, intercellular spaces and blood stream.
- (2) Maintenance of acid-base balance.
- (3) Helping in the excretion by the kidney, of acid radicals formed during metabolism.
- (4) Maintenance of blood volume.
- (5) Maintenance of tissue irritability.

Human tissues can be visualized as being formed of three compartments, the cells, the intercellular spaces and the blood stream. Sodium chloride is mainly present in blood and inter-cellular spaces and to a slight extent in the cells proper. Cell membrane does not allow its passage to and from the cells; but it can easily traverse from the blood stream to intercellular spaces, and back again. The cells of the capillary wall do not form a barrier to its passage in either direction. However water can traverse in all the three compartments. The movement of water and salt in any direction is governed by the physical laws relating to fluids; thus the fluid moves from a compartment of comparatively low osmotic pressure to one of higher osmotic pressure. The concentration of salt in the tissue fluid is adjusted at an optimum at which the tissues function best. These three compartments are normally in osmotic equilibrium, which is chiefly maintained by the salt concentration in tissue fluids. The concentration of salt depends on the net outcome of two factors:—amount ingested and amount

* Specially contributed to THE ANTISEPTIC.

excreted. The daily amount that is necessary is 3 to 10 grams, but usually much more is consumed. The excess which is not required is rapidly excreted in the urine, and so the concentration and osmotic pressure in the inter-cellular spaces are not disturbed. Sodium chloride is an essential constituent of the body, fulfilling as it does, many different physiological needs; the body tries to conserve it at its optimum concentration; under conditions of salt deficiency the urinary excretion of salt may stop altogether. Thus subject to limitations to be noted hereafter, the urinary output of salt, which can be determined by easily performed tests, affords an index to its concentration in the tissue fluids. The maintenance of acid-base balance, and the maintenance of equilibrium of the osmotic pressure in tissue fluids have to go hand in hand, so that one does not upset the other. Under physiological conditions the blood stream, the tissue fluids, and intracellular fluid are in osmotic equilibrium. When conditions of acidosis arise, more sodium is required to combine with the acid radicals before they can be excreted, by the formation of neutral salts. Thus more sodium is lost, and this excess sodium is drawn from the inter-cellular spaces where it is chiefly stored; and a potential condition is created where, due to extra loss of sodium the osmotic equilibrium in the intercellular spaces is lowered. The body meets this by prompt diuresis, so that not sodium alone, but water also is simultaneously lost and the osmotic equilibrium remains undisturbed. Functional integrity of the kidney is an important factor in salt and water metabolism. The kidney has the inherent capacity to vary the amount of urine formed to meet the body's needs. This is achieved without the accumulation of waste products in the body because the kidney can concentrate these waste products to a more or less extent. But there is a limit to this power of concentration and if a sufficient quantity of water is not available the waste products accumulate in the body and clinical renal failure from dehydration results. The minimum of water required by the kidney for excretion of all waste products is stated to be 500 c.c. But this minimum may be greatly increased in conditions where a greater amount of waste products is to be excreted as in a condition of starvation, fever, adverse catabolic condition, heavy manual labour etc. Apart from this quantity of water the body requires 500 c.c. of water to allow for the imperceptible perspiration, and 500 c.c. more for evaporation. These quantities may vary enormously depending on adverse atmospheric conditions. Thus the minimum quantity of water required is 1500 c.c.

Under diseased conditions, water and salt metabolism is deranged. The capillary wall may not form an intact barrier, the hydrostatic pressure may be enormously increased as in congestive heart failure with the result that accumulation of fluid in intercellular spaces occurs. Large quantities of water and salt may be lost in gastro-intestinal disturbances. In Addison's disease, where there is

a deficiency of suprarenal cortical hormone, sodium chloride continues to be excreted in the urine in spite of the fact that there is salt depletion in the body. On the other hand, the body may be replete unto choking but the urinary excretion of salt may be scanty, as in nephritis, because of the inability of the kidney to excrete it in sufficient amount. Now turning to pathological states it will be readily appreciated that disturbances in salt and water metabolism can occur together or derangement in one alone may occur without a corresponding derangement in the other. Thus syndromes of salt retention, salt depletion, water retention, or dehydration do occur.

Clinical conditions where salt retention occurs.—1. *Excessive salt intake*:—With normal renal function an excess of salt is quickly excreted and no retention occurs. But when the renal function is impaired a little more salt may produce symptoms of salt retention.

2. *Congestive heart failure*:—Here, there is a breakdown in renal function with the result that adequate excretion does not take place and salt retention occurs. The intensity and degree of dyspnoea, oedema, raised venous pressure and other signs and symptoms run parallel with sodium retention. Recurrence or precipitation of congestive heart failure very often follows indiscreet use of salt.

3. *Excessive saline infusions*:—Compensated heart disease is turned into frank failure with imminent threat to life, after a saline infusion. Very great caution is, therefore, needed in such cases.

4. *Obesity*:—Here salt and water retention occur together.

5. *Cushing's syndrome*. 6. *Acute nephritis*.

7. *Diabetes insipidus*.

8. *Excessive adrenocortical activity*:—As a clinical condition it is rare. But the use of suprarenal cortical hormone in treatment may, under certain circumstances, be hazardous. It is often used to combat peripheral failure and shock which follows coronary occlusion. In many of these cases cardiac failure is also present, and the sodium retention following the use of cortical hormone may prove to be a serious danger.

Symptoms of salt retention.—1. *Cellular dehydration*:—Retention of salt in intercellular spaces increases the osmotic tension in intercellular spaces and water from inside the cells exudes into the intercellular spaces. The cellular dehydration thus induced produces intense thirst. The proper treatment would be to give plenty of water and fluids without salt.

2. *Impairment in the functions of the central nervous system*:—Head-ache, loss of concentration, etc.

3. *Respiratory failure*.

4. *Oedema* :—Retention of salt is soon followed by retention of water with the production of oedema.

5. *Precipitate heart-failure* :—Hypertensive and coronary heart disease can worsen very quickly even with very slight sodium retention.

Conditions where salt depletion occurs.—1. *Deficient salt intake*.

2. *Forced diuresis with mercurials* :—Salt restriction is an important measure in congestive failure. Salt restriction might have been practised long before the onset of actual heart failure for hypertension itself in hypertensive patients. Mercurial diuretics not only remove the water, but salt also with it. With a restricted intake and an excessive output, salt depletion soon occurs. Symptoms and signs of salt depletion are in many ways similar to incipient uræmic coma. These cases are apt to be missed, unless the possibility of salt depletion is borne in mind.

3. *Vomiting and diarrhoea*.

4. *Intense sweating* as in very hot months or in very severe bodily exertions.

5. *Heat stroke*. 6. *Addison's disease*.

7. *Diabetic acidosis* :—Due to faulty metabolism, acid radicals accumulate in the body. They have to be excreted by the kidney but before this can take place they have to be neutralized; great sodium loss may occur in this process.

8. *Chronic renal failure* :—In chronic renal failure, both the units of the kidney, the glomerulus and the tubules do not function properly. Defective glomerular filtration leads to accumulation of non-protein nitrogen and retention. The tubules cannot neutralize the acid radicals by formation of sufficient ammonia nor can they reabsorb sodium if body needs it, and thus sodium loss may be quite considerable. There are so many abnormalities in blood-chemistry, and sodium depletion is only one phase of the many.

Signs and symptoms of salt depletion.—1. *Renal failure* :—For some not well understood reason, the kidney cannot function properly in the absence of sodium; in salt depletion renal failure ensues with the retention of non-protein nitrogen. Findings in blood chemistry may be misleading and diagnosis of uræmia made. It is important under these circumstances, to determine blood sodium, and failing that, the sodium chloride in the urine. Sodium excretion usually stops in cases of salt depletion, except in patients suffering from Addison's disease.

2. *Mental apathy, drowsiness, dulling of intellect* :—These are common findings in uræmia also.

3. *Muscular cramps and twitchings*, specially in cases due to heat exhaustion and profuse sweating.

4. *Fatigue on exertion*. 5. *Breathlessness*. 6. *Anorexia*.
7. *Cerebral thrombosis*. 8. *Peripheral circulatory failure*.

As salt excretion cannot take place without a corresponding amount of water, excessive excretion of salt is usually accompanied by cellular dehydration. Moreover, clinically dehydration and salt depletion occur together e.g., diarrhoea, vomiting, etc.

Thus salt depletion and dehydration may occur together, and the treatment of such cases consists in providing adequate amounts of both salt and water. But in cases of pure dehydration without salt depletion and in cases of pure salt depletion without dehydration the treatment must be appropriate; otherwise great harm will result. In cases of salt depletion mere supplying of water is not desirable. With salt depletion the osmotic pressure in inter-cellular spaces is less than intracellular osmotic pressure and therefore more water enters the cells from the inter-cellular spaces and water intoxication of cells results. Symptoms of water intoxication are, decreased heart-rate, severe headache, gastro-intestinal distress, elevation of blood pressure, muscular cramps, and convulsions probably due to turgescence of cerebral cells. Supplying saline alone in pure dehydration would be equally harmful as it will accentuate cellular dehydration by withdrawing water into intercellular spaces, from the cells. Water intoxication is not common because the drinking of water is rapidly followed by diuresis unless the kidney function is greatly deranged. But water intoxication can be induced deliberately with concurrent administration of pituitrin, which acts as a powerful antidiuretic. This water intoxication is used as a diagnostic aid in epilepsy. Thus it is important to recognize and differentiate between pure salt and water depletions. In the following table are summarized the important differentiating points between the two :—

Manifestations		Pure water depletion	Pure salt depletion
1	Thirst	+++ Dry tongue	Absent
2	Lassitude	+	+++
3	Orthostatic fainting	Absent till late. No circulatory failure.	+++
4	Urine volume	Scanty	Normal till late
5	Vomiting	Absent	May be +++
6	Muscular cramps	Do.	Do.
7	Blood failure	Normal till late	Fall +++
8	NaCl in urine	Often +	Always absent except in Addison's

In addition to the above clinical findings important changes in blood chemistry take place. These cannot be determined at the bed-side; specialised laboratory facilities are needed.

Indications for a low sodium diet.—(1) Acute nephritis; (2) arteriosclerosis; (3) congestive heart failure, whether left or right sided.

Even though there may be no œdema, but only dyspnoea, is present salt restriction is absolutely essential; (4) Oedema; (5) Obesity. Retention of salt and water contributes to a certain extent for the obesity; (6) Diabetes insipidus; and (7) Meniere's disease.

Indications for an increased salt intake.—(1) Vomiting and diarrhoea.—Here the need is not only of increased water intake but of salt also; (2) Diabetic acidosis—To increase the amount of available base; (3) Chronic renal insufficiency; (4) Heavy manual exertion; (5) Profuse sweating; and (6) Heat exhaustion.

Salt is a pharmacologically inert substance, yet an important constituent of the body. Its excess or depletion may initiate new pathological states. Any departure from the normal concentration in either direction, will many times worsen the pre-existing diseases. On the other hand, its proper use will be followed by incredibly good results.

References :

1. Wright's Applied Physiology.
2. Friedberg's Diseases of the Heart.
3. Sodeman's Pathologic Physiology.
4. Hyman's Integrated Practice of Medicine.

Toxic Effects of DDT Residues on Food Material

The atomic bomb and DDT are the 2 most notable scientific developments of the war. They have been brought together now in a more direct and scientific sense by recent British research in the Pest Infestation Laboratory. Radioactive isotopes, have been used to study the biological movements of DDT residues on wheat. An insecticide containing one bromine atom in place of one chlorine atom in DDT was prepared. Wheat grain was sprayed with this insecticide. When this wheat was milled, one-third of the residues was found in the flour showing that the insecticide quickly penetrated the husks of the grain. Not only were residues also found in bread made from this flour but there was an indication of some chemical association with wheat protein as a result of the bread baking conditions. Rats fed with this bread, and hens fed with the whole unmilled wheat grain showed rapid and wide distribution of the insecticide inside their bodies.

These new results give strong confirmation for the view that DDT is a hazardous contaminant of animal and human foodstuffs. Though, in themselves, the residues from DDT applications may be small, it is clear that they are considerably retained after ingestion. Toxic effects of a harmful if not lethal nature could arise from the cumulative absorption of DDT residues.

Too little remains known about the chemistry of DDT within the metabolism of animal life. Fortunately, the use of DDT as a contact insecticide for protecting stored grain has not been encouraged; volatile fumigants have been preferred. *The new research emphasises the wisdom of this policy. It also suggests that DDT should never be used to dust or spray growing cereal crops.*—(From *Food Manufacture*, London, Novr., 1950).

BLINDNESS*

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THE causes of blindness are many. Some of the diseases of the eye which seem trifling, e.g., conjunctivitis, when neglected may result in ulceration of the cornea followed by infection and ultimately the loss of the eye—the most precious organ in the body.

There are various diseases of the eye in which, inspite of the best treatment we can do very little good e.g., primary optic atrophy, retinitis pigmentosa, congenital anomalies, etc.

There are various other minor diseases of the eye where due to sheer neglect and ignorance, so many eyes are spoiled, resulting in serious economic loss to the country.

CAUSES.—I. The application of various irritants by the village quack eye-specialist, who prescribes these ointments and drops irrespective of the nature of the eye-disease sometimes causing violent reactions. These irritants may contain strong acid or alkali; cases are on record where many members of the same family using the common ointment have lost their sight in course of time. Is it not therefore, imperative that we should educate our masses and that eye clinics are opened in various centres in our country?

II. Again, there are the couchers who create enormous havoc in the villages. During winter, which is the cataract season in North India, these couchers move from village to village and by their persuasive talk, win over the innocent cataract patients and operate on their lenses by simply pushing aside the lens after cocainising the eye by using an instrument which they carry in their side pocket. The lens which acted as an opaque curtain, having thus been shoved aside the patient can now see and the quack is well paid. But little do these innocent people realise how badly they have been cheated.

It is in 3 stages that damage results to the eye as a result of this couching.

FIRST STAGE.—During operation :—

There might be : (1) Vitreous hæmorrhage. (2) Choroidal hæmorrhage. (3) Detachment of the retina. (4) Infection.

These complications lead ultimately to the loss of sight.

SECOND STAGE.—If no harm results in the first stage, other complications, e.g. : (1) Glaucoma and/or (2) Iridocyclitis may occur later.

THIRD STAGE.—If the second stage also passes uneventfully (1) optic atrophy due to the lens continuously rubbing over the optic nerve, may and often does result.

* Specially contributed to THE ANTISEPTIC.

III. Exanthemata.—A great many eyes of the children are lost every year during smallpox epidemics; the eruption appears on the lids which become oedematous and the eyes cannot be opened. There is always some conjunctivitis in all exanthemata. The conjunctivitis if not properly treated, leads to corneal ulceration because the corneal epithelium is a continuation of the bulbar conjunctiva. Corneal ulceration leads to secondary infection resulting in pan-ophthalmitis. It is therefore, important to be cautious and prevent this eye complication in smallpox. The eye should be dressed daily, some eye lotion as Penicillin drops, Mercurochrome or Potargal drops put in daily coupled with antibiotics or Sulphanilamide when necessary.

IV. Xerophthalmia.—In xerophthalmia the conjunctiva is smoky and lustreless, dry and wrinkled. This is generally seen in children of poor people and in street urchins. These children complain of night blindness. The younger children are marasmic and suffer from gastro-intestinal disorders; xerophthalmia is due to vitamin 'A' deficiency. These children generally die or if they survive, many of them become blind, because their resistance to infection is very low. The eyes get infected and in the long run sink. This is an extreme picture of malnutrition. The treatment is by vitamin 'A' therapy both parenterally and orally and a rich nutritious diet. How will the very poor people be able to purchase these medicines?

V. Nutritional amblyopia.—If one is continuously kept on a deficient diet for a long period a pallor of the optic disc or optic atrophy often results. This condition is known as nutritional amblyopia and the cause is malnutrition. The treatment is therefore, quite obvious.

VI. Other types of amblyopia.—

- (a) *Toxic amblyopia* is due to the excessive use of tobacco alcohol, etc.
- (b) *Amblyopia due to drugs*:—Quinine, Filixmas, Carbon-disulphide, Stramonium, Cannabis indica.
- (c) *Heteronymus amblyopia* is due to high refractive error.
- (d) *Uraemic amaurosis* is due to acute and chronic nephritis.
- (e) *Pregnancy complicated by eclampsia*:—The blindness is due to toxic material acting upon the cells of the visual centre.
- (f) *Various retinopathies*:—Diabetic, albuminuric, hypertensive retinopathy. The loss of vision is gradual. The treatment is symptomatic.

VII. Myopia.—Any degree of myopia occurring in a child under the age of four should be regarded as a serious condition. In progressive myopia there is the possibility of sudden hæmorrhage or retinal detachment. It has been established that the offspring

of a parent with degenerative myopia will be subject to the same disability, according to the laws of recessive Mendelian inheritance. It is therefore, highly objectionable from the medical point of view for two highly myopic parents to marry.

VIII. Glaucoma is a very painful disease. If not treated early and if the treatment is not of the proper one considerable damage results e.g. sinking of the eye. The causes may be primary or secondary. *Buphthalmos* is a condition of glaucoma in children. There is congenital blockage of the angle of the anterior chamber. Trephining is done but it often fails. The eye is to be enucleated if nothing more satisfactory is attempted.

IX. Venereal diseases.—Syphilis, both the congenital and acquired types, causes havoc in the several coats of the eye. Anterior choroiditis, disseminated choroiditis, choroido-retinitis, are manifestations of syphilitic invasion. The vision is reduced, sometimes to finger close to face. For all practical purposes, the patient is almost blind. If these patients are not adequately treated, permanent degeneration takes place; it will then be too late for any treatment to be instituted.

In *interstitial keratitis* which is a congenital manifestation there is deep keratitis, due to disease of the uveal tract. At the height of the disease, the vision is reduced to finger close to face. The keratitis and opacity generally clear up in a few weeks but very rarely the opacity is permanent.

X. Ophthalmia neonatorum.—This is one of the most important causes of blindness in children. The gonococcus has the power of invading the intact epithelium of the cornea. The newborn children get infected by vaginal or faecal matter.

The gonococcus causes intense conjunctivitis and ulceration of the cornea with or without injury to the cornea itself.

The perforation is followed by:—(a) Ant. synechia; (b) Adhesive leucoma; (c) Partial or total staphyloma; and (d) Panophthalmitis.

If there is no perforation, there is scarring of the cornea.

When the vision is not completely lost, the development of macular fixation is interfered with; this takes place during the first six weeks of life, and results in the development of nystagmus.

TREATMENT.—No time should be lost after diagnosis. The ophthalmic surgeon should not wait for the pathologist's report.

The treatment is as follows:—Penicillin drops in a strength of 10,000 units per c.c., should be instilled every minute for 30 minutes. Then every 5 minutes for 30 minutes. Then, every 30 minutes for 6 hours. Then, every 1 (one) hour for 6 hours. Then every 2 (two) hours for 12 hours. The total time taken is 22 hours.

An experienced nurse should be deputed for this work and the treatment should be rigidly followed, because it is a question of eyes or no eyes.

XI. Phlyctenular keratitis, trachoma, ocular myiasis, ankylostomiasis, filarial infection, beri beri, cholera, malaria, leprosy etc., if not treated early, may also cause pathological changes in the eyes resulting in various complications and ultimately in loss of sight.

It is not possible to touch upon all the diseases of the eye and the purpose of presenting this article is to place before the readers how best we can help poor men in villages and to stress the need for mass education of the people through magic-lantern slides showing the various diseases of the eye and through propaganda.

Ophthalmoscopic pictures of the various diseases described in this article have purposely been omitted.

References:

1. Parson, J. H.—Diseases of the Eye.
2. May and Worth.—Diseases of the Eye.
3. Duke-Elder, S.—The Practice of Refraction.
4. Thorington, J.—Refraction of the Human Eye.
5. Elliot, R. H.—Tropical Ophthalmology.
6. B.M. Sinha.—The Antiseptic, March '50.
7. B.M. Sinha.—The Antiseptic, July '50.
8. Fleming, A.—Penicillin
9. Passmore, R.—Nutritional Diseases of India.
10. Arnold Sorsby.—Ophthalmia Neonatorum.

One of the Problems in Diabetes Management

After drawing attention to the various chronic vascular complications which occur even in the well-cared-for diabetics, (such as vascular insufficiency, atherosclerosis, arteriolar sclerosis and medical sclerosis, Carr urges the need for local care of the legs and feet from the very beginning of the initial discovery of diabetes. The generally established measures include the following:—

1. Warm (never hot) foot baths every evening.
2. Use lanolin or other emollient oil on the skin after bathing, (rubbing alcohol if the skin is too soft).
3. Cut toe nails straight across, beyond the end of the toe.
4. Be very careful not to injure the toes and feet.
5. Never apply heat to the feet.
6. Do not wear tight garters.
7. Wear properly fitting shoes.
8. Constant awareness is needed of the possibility of gangrene, in men with poorly healing sores on the foot.—(Carr, T. L., Jour. Iowa State Med. Soc., Sep. 1951).

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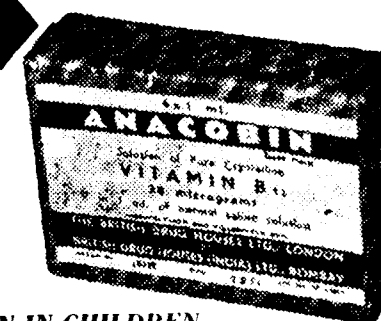
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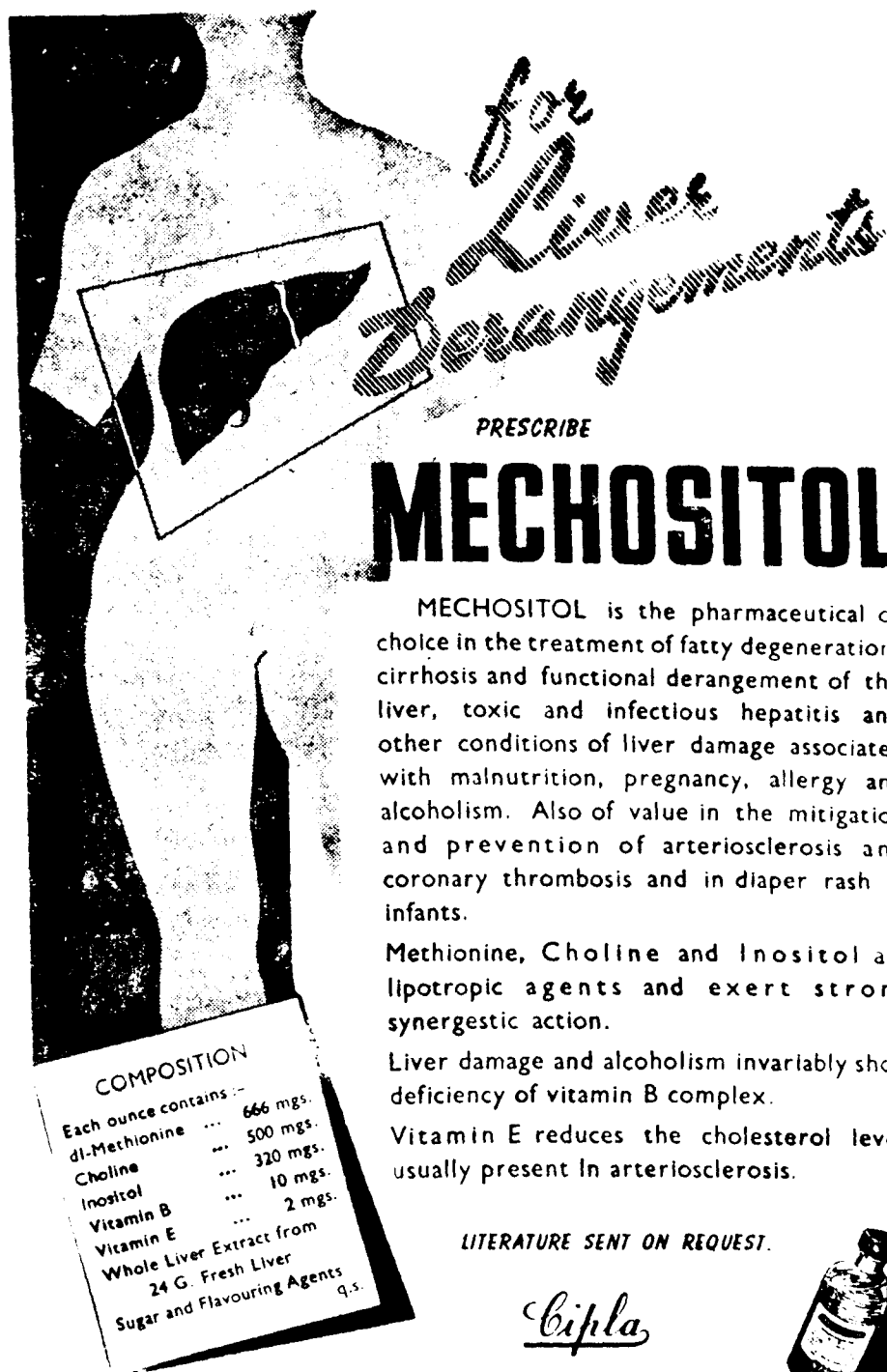
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Ergoupiol Smith's 20 Caps.	Tubo 10-0	M & B Acetylarsan 10x2cc. 4-12; 10x3cc. box	6-8
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Hinrods Ashthama Cure	.. 30-0	.. Sulphatriad 25 2-6; 500 tabs.	tin 45-0
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Maclean's Stomach Powder Med	.. 21-8	.. Sulphadiazine 25 2-14; 100 Tabs. Tin	11-8
Martin's Apple Seed Pills	bot. 6-0	Menthol Crystal 1 oz. 5-0; Gynomin tabs.	1-14
Peacock Bromide 7 8; Chionia	.. 9-8	Neo Salvarsan 15 1-12; 30 2-6; 45	each 2-11
Scott's Emulsion Sm 20 8; Lg.	doz 52-8	Paludrin 1 gm. 1000 tab. 30-12; 500 tab.	3 gm. 27-0
Sloan's Liniment 21 8; Sodamint 100 tabs.	9-0	Pamaquin 0 1 gm. 500 or 0 2 gm. 300 tabs	bot. 1-2
Bayer's (German) :-			
Atebrin 15 0-13; 300 0-8; 1000 tabs.	bot. 18-8	P.D. Chloromycetin 12 Caps.	bot. 26-4
.. 0 3gm. 2amps. 2-0; 0 3gm. 25 amps	box 20-0	.. Liver Ext. 2 USP 10cc. 4-6; 5 USP 10cc.	ea 8-8
Boot's Plurivite 100 caps. 7-8; Burnol Each	1-2	.. Dinaltin Sodium 100 caps	bot. 6-0
B.W. Atrophia Sulph 1 100 gr. 20 tabs	tube 0-8	Penicillin Sodium Crys. G. :-	
Ciba's Gibazol 250 tabs.	bot. 17-4	Merck's 1 lac. 2 lac. 5 lac. 10 lac.	
.. Coramine Liq. 15 c.c. 3-14; 20 tabs	tube 3-0	0-12 0-13 1-8 2-10 vial.	
.. 17c.c. 5 amps. 2-12 20 amps	10-8	Pfizer's 0-14 1-0 1-10 2-12	..
.. Enterovioform 20 2-14; 100 tabs	bot. 12-4	Procaine Penicillin Aqueous :-	
Clinical Thermometers 1/2 min. :-		Pfizer's 4 lac. 1 cc. 3 lac. 1 cc.	
German Eng. Japan, U.S.A. Zeal Hick's		3-2 2-14 vial	
Ra. 15-0 19-8 11-4 19-8 33-12 57-0 doz.		Quinacrin USA 100 1-1; 1000 tab. USA	bot. 10-8
Elastoplast 2 x5 yds. 2-8; 3x5 yds.	tin 2-12	Quinine Sulph Govt. B.P. 47-8; Std.	lb. 41-8
Endo's Emetin Hydro 1 gr. 6x1 cc.	box 2-4	.. Roche 60-0; Java 53-8; How.	.. 55-8
Eng. Aerillavine 500 2-8; 1000 tabs.	bot. 4-0	.. Ind. 3-12; How 4-4; Bihydro oz.	8-0
.. Aspirin 5x100 1-0; 1000	.. 5-12	.. Bihydro 2 gr. 100 4-0; 5 gr. 100	bot. 8-0
.. Caffein 100 2-4; 1000	.. 14-8	.. Italy 15 gr. 2c.c. 5 amps. box	1-0
.. Adhesive plaster 1x5 yds. 0-10 1x5 yds.	1-0	.. Bisulph 2 gr. 100 3-4; 5 gr. 100	tab. 6-8
Eng. Procain Hydrochloride 1% 3cc. 25 box	3-12	.. B.W. 10 gr. 12x2 c.c. 4-10; Evans.	4-0
.. Hydrageri Iodine Rubrum 12x1cc.	.. 0-6	.. 5 gr. 1cc. 6 amps. B.D.H.	1-14
.. Mercury Bimodide 12 x 1 cc.	.. 0-14	.. 5 gr. 1cc. 100	B.D.H. 24-0
.. Adrenalin Hydrochlor Solu.	oz. 1-12	Quinine Bihydro 10 gr. 2cc. 100 amps. :-	
.. Mercurochrome 10 gm.	Bot. 1-10	B.D.H. Evans B.W. P.D. Ind.	
.. Sulphathiazole 1000 tabs.	bot. 40-8	Ra. 30-0; 26-0; 32-8; 48-0 18-8 box	
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Eugonine Hall. or Java 4 4; Roche oz.	4-10	Syrup Cocillina Co. Eng. 4 ozs.	bot. 2-8
Eye Dropper USA type 0-5 Finger Stall doz.	1-0	Steedman's Soothing Powder	doz. 12-12
F.L. Paragon washable 0-8; Crocodyle each	0-14	Stethoscope POCHE PLASTIC Superior	Each 3-0
.. Durex USA. 1-12; Silvertex USA	doz. 2-4	Stethoscope POCHE PLASTIC with double chain	.. 8-0
Glaxo's Berin 1 mg. 25 tabs. 0-9; 100 tabs.	1-2	Succus Cineria Maritima	.. 9-8
.. 1 mg. 500	5-8; 1000	Sulphadiazine 500 48-0; 1000 tabs	bot. 81-0
Hydrogen Perox de Eng. 4 oz. 0-12; 8 oz.	1-6	Sulphagunadine 500 17-8; 1000 Tabs	bot. 34-8
Hypo Record Needle Japan or German	doz 2-8	Sulphanilamide U.S.A. 5gr. 1000 tab.	.. 7-4
.. All Glass	.. Japan 3 8; German	.. Eng. 7 1/2 gr. 1000 11-0; 500	.. Tin 5-12
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German 1-0 1-6 2-0 3-0 6-4 8-0		Suture Needles 0-4; Saline Needle	each 1-14
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Liq. Sedans Eng. 4 ozs	bot. 4-0	.. c Vit. B. Complex 10 c.c.	.. 4-8
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S. LAHIRI, M.B.,
Banaras, U.P.

THIS article is merely an attempt to analyse and synthesise my observations extending over nearly a quarter of a century and then to bring those marshalled facts before my colleagues of the medical profession, in the hope that some of my fellow brethren may find some thing useful in them. If any new idea or information on diagnostic radiology is sought, I may warn the reader, at once not to expect any such thing in this contribution.

It would not be far from correct if I say that in our country, doctors and to a lesser degree the lay public, have become X-ray minded only within the last 15 years. As a result, some cases are now referred to us by doctors but quite a large proportion come to us directly. This latter class of patients come and tell us either that they have been getting treatment for their ailments for so many weeks or months or years (as the case may be), without any benefit or that their physicians are unable to "catch" what their disease is; they therefore want an X-ray taken. To them, X-ray examination is much the same thing as standing in front of a mirror to see the blemishes on one's face!!! God alone knows, if he needs an X-ray examination at all and if he does, what the actual investigation should be. It takes a great deal of your persuasive eloquence, patience and time to send him back to a (or his own) doctor; and very often he goes away from you thoroughly dissatisfied and not infrequently to another radiologist who may choose to derive pecuniary benefit, as a result of your refusal to take his 'X-ray photo'. It will often be amusing to hear one of them telling you that he wants an X-ray picture of his whole body, while another will point his finger to his tummy and ask for an X-ray of his "Belly". What are you going to do? Even with chest cases of this category of "direct comers", your difficulty is very great. All cases are not tubercular (as the lay public think). There are border line cases; the eosinophilic lung cases; doubtful cases requiring observation and further data viz., laboratory reports, clinical findings, history etc.; other non-tubercular lung affections; new growths; and so on and so forth. What are you going to tell them when you take them up directly?

The other category, viz., cases referred by medical practitioners also do not place you in as happy a position as you would wish for. Hardly 10% of them come with any history or notes on clinical

* Specially contributed to THE ANTISEPTIC.

findings; some come with a request for "X-ray photo of the spine or elbow or abdomen or gall bladder" or some such thing. A chit may also come like this:—"Dear Dr., this patient is having colicky pain in his abdomen for a long time. Please take an X-ray picture and send me your opinion." At such times, one would in despair wish that he ran a hair-cutting saloon rather than an X-ray Clinic!!! At the same time, the realities of life have got to be considered, side by side, viz. you have got to foot heavy bills, pay your staff and feed yourself and your family. How many of us can afford to send away cases of the types enumerated above, in order to keep the torch of the profession burning bright and to keep his conscience clear, no doubt with the object of ultimately benefiting the patients.

I may be pardoned for making the following observations. Quite a good number of general practitioners fail often to make a distinction between radiography and 'photography'!!! They are quite satisfied if the patient takes to them a sheet of celluloid, with black and white smudges on it. They never care for a report and think that they can interpret it quite all right. For them, any person possessing a portable X-ray machine and doing amateurish radiography (or photography, to be more correct) in his spare time as a side business and giving cheap radiograms, will do, so long as it helps them to carry on their practice! "An X-ray picture has been taken" is enough to satisfy their patients and themselves regardless of what the X-ray picture shows or fails to show.

The next difficulty with our mofussil patients, is the habit of dropping in, at all times and on all days, without previous appointment, whatsoever. Preparation of the patient (when necessary), prior to the X-ray examination, is a thing unknown even to many of the general practitioners, not to speak of the patient or his relatives. Very often they travel long distances by rail or bus or otherwise, with heavy kit often in inclement weather to reach the radiologist's clinic. What are you going to do with such a party? They fail to take into consideration such inevitables as sickness or absence from station, of the radiologist or of his technician; breakdown of his machine; failure of the electrical mains (current supply); shortage of films and chemicals; other previous appointments; Sundays and holidays etc. They take it as a matter of course that X-ray will be done the moment they arrive. They consider that there is no difference between getting a prescription for a diaphoretic mixture and having an X-ray examination done.

An X-ray examination should not be ordered by the doctor unless he thinks that there is a reasonable chance of his patient being benefited by it; if in doubt, the radiologist should be consulted. He should not forget that X-ray investigation is a costly affair, not to be undertaken lightly, where the people concerned have a *per*

capita income of a few annas a day. He should not unnecessarily make our expensive (scientific) system of medicine still more expensive and prohibitive to the patient.

There should be a short history of the case (even a few lines will help) in his request-slip to the radiologist in which the doctor should clearly state the nature of the investigation, to be done, which view or views are to be taken, as also any other specific work to be done e.g., opaque enema examination or excretion pyelography or oral cholecystography or kidneys (straight picture) and so on. Where the general practitioner is unable for any reason to take a decision himself, he should clearly tell the radiologist to use his discretion and carry out the investigation to the best advantage. Cases requiring pre-X-ray preparation of the patient should be carefully prepared, as per direction of the radiologist, as, on this depends a successful result. It is to the best advantage that all cases requiring X-ray of any part (even spine or ribs) below the level of the diaphragm and passing through the abdominal cavity, are given 1 or 2 *good, warm* normal saline cleansing enemas, prior to the X-ray examination. This is a golden rule.

Cases in splints or in bandages to be X-rayed, should be sent to the X-ray department, with clear written instructions to the X-ray department, as to how much of the splints and bandages may be removed and how much not. In cases where these are not to be removed or disturbed, the parts should be sent so bandaged (or splinted) as to make it possible for the view or views required to be taken, without difficulty or needless suffering to the patient.

Stretcher cases may very advantageously be sent for X-ray on a stretcher, whose side poles and cross iron rods are removable, as such a stretcher can be directly placed on the X-ray table, the poles removed and the X-ray examination done without any pain whatsoever to the patient or impediment to the actual work. The patient need not be disturbed at all. I have found this to be a very practical and useful point to be stressed. Where such a stretcher is not available, one can be easily improvised with a piece of hessian (gunny with which cloth-bales come wrapped and are readily available anywhere) or even a household durry, having the 2 sides folded about 4" and stitched, through which the poles (thin bamboos or even 2 suitable-sized strong lathis will serve the purpose quite well) can be passed. This type of stretcher is very suitable for X-ray work as well as for transporting patients from the higher floors of a house to its ground floor or *vice versa*, or in trains, buses etc. For long distance-travel on foot, this stretcher can be placed on another of the fixed type and carried in the usual way.

An X-ray examination should always be looked upon by the general practitioner as another link in the chain of diagnostic aids. He should always remember that the X-ray is a good servant but a bad master and as such, should never be allowed

to supplant the results of the clinical examinations, and observations, or one's own judgement based on years of ripe experience. X-ray should never be made the scapegoat in cases of doubts and difficulties as some are inclined to make it (I apologise and I mean no disrespect) nor a ground for shifting responsibility. He should always try to get the most out of it. If his doubts and difficulties are not removed, he should never hesitate to consult the radiologist freely or even to request a re-examination or a supplementary examination, as the case may require. It is my own experience that hardly 5% of the referring physicians do so. They seem to think that once a film is exposed, the curtain is dropped for ever! And at the same time, we radiologists also should never feel annoyed at having to re-examine cases, in order to be able to give our very best (it may not all mean money in every case) and thus serve our patients and our professional brethren, to the best advantage. We would thereby, be ennobling our speciality.

There is another point, a delicate one, which I wish to mention, because we come across such a situation almost every day. The annoyance caused in a busy department is the least of it, the greater one being the extreme hardship caused to the patient and to his people, particularly when they come from long a distance. It is the question of cost. Quite frequently, we find doctors sending patients, ordering a big job (opaque meal examination or pyelography or cholecystography, etc.) without any thought about their paying capacity. Such patients are shocked to hear of the cost involved! To add insult to injury, sometimes they are even told by the referring doctor that it will cost them an ordinary fee (i.e., the ordinary charges for a chest picture or a bone picture), whereas the elaborate examination ordered will cost 3 figures or more. The unfortunate patients find themselves in an awful difficulty in a place where they are perfect strangers and their plight may be easily imagined. They feel almost stranded. This should never be done.

In even a moderately busy X-ray Department, the advisability of making a previous appointment cannot be over-emphasised. This saves long and unnecessary waiting (sometimes even being returned without an examination) for the patient, inconvenience to the other patients already booked, annoyance to the personnel of the department and necessarily also often a less satisfactory and a poorer quality of work. I believe, no one would wish for any of these.

Regarding the (pictorial) quality of the radiogram, I should like to strike a note of warning and offer a bit of good advice. A radiogram is intended to give the maximum information and help in arriving at a correct diagnosis of the case, i.e., it should be informative. It is not intended to look a beautiful picture nor a piece of art. I might tell my colleagues of the profession that a hard radiogram looks more beautiful to the eye, but at the cost of minute details, which are to be seen and visualised only on a soft radiogram,

which is certainly not so attractive-looking. And I would always prefer the latter kind of radiogram if I were the doctor in charge. It is the maximum information in the picture which should be looked for and not artistic beauty.

Before concluding, I would make a suggestion. Now, almost every important station has got a branch of the Indian Medical Association and almost every doctor is a member thereof. It would be of help to all concerned if the practitioners and the radiologists combined and wrote joint-papers and arranged demonstrations of suitable cases—something like a symposium, whenever an opportunity arises; we would thereby be achieving something really useful.

You may laugh at the lot of the poor mofussil radiologists, but my remarks are based on facts gathered in my experience of over 2 decades. It will be a glorious day, when the radiologist's headaches disappear and he is enabled to render efficient service to the profession and to the public in an atmosphere of close co-operation.

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Trigeminal Cardiac Reflex in Circulatory Diseases

Immersing the face into cold water results in reactions elicited by thermal reflexes in the trigeminal sphere; this can influence the heart, circulation, respiration and also the process of swallowing. Brauch investigated the trigeminal-cardiac reflex in patients with cardiac and circulatory lesions. Face immersion is a functional test which usually reveals the extent to which the heart responds to extra-cardiac stimuli. The temperature of the water used for face immersion is 10°C. (50°F). Brauch describes observations on several patients which reveal the possibility of elicitation of steno-cardiac symptoms by cooling in the region of the trigeminal nerve. The old clinical experience that attacks of angina pectoris can be elicited by a cold wind or by entering a cold room is also proved by this test. In many persons, immersion in cold water did not elicit signs of angina pectoris although they had organic heart trouble. In those patients with myocardial lesions prolonged immersion test and E.C.G. demonstrated a collapse mechanism, that might explain some otherwise unexplained deaths occurring during bathing and swimming. The immersion test can be employed therefore, to determine a person's suitability for swimming. In a small group of patients with heart disease the pulse-rate showed extraordinary rigidity and was not influenced at all by the immersion experiment. Abnormal pulse rates are often refractory to extra-cardiac stimulation; an instance of this is the tachycardia of patients with ex-ophthalmic goitre, which does not respond to the immersion test.—(Zeits. f. Kreis, March, 1950, and J. A. M. A., 144, 1950).

SYMPOSIUM ON MALARIA*

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"Malaria is one of the major medical problems of the world. India being one of the most malarious of all countries, suffers the most especially due to lack of proper drug treatment."

Introduction.—Of all the tropical, infectious and non-infectious diseases, malaria is considered the most important. It kills more people than any other disease, and, it is the cause of great economic loss. It has the highest incidence in almost every tropical and subtropical country.

Malaria was well known to the ancients. Hippocrates gave classical descriptions of malaria. Williams states that a Chinese manuscript of the 3rd century B.C. advised the traveller entering regions where "*chang-chi*" (malicious air) prevailed to make arrangements for the remarriage of his widow! In the *Susruta Samhita*, may also be found references to its conveyance by mosquitoes.

Of all diseases malaria is the most widespread, barring perhaps the common cold. It is also the most easily controlled and treated of all serious diseases, yet not controlled and most often neglected. No other tropical disease has been the subject of greater research and study than malaria and so a large volume of valuable knowledge has been accumulated. Nevertheless, it still provides knotty problems to the public health authorities and dominates the practice of most medical men in the tropical and subtropical regions of the world.

The failure of the French to construct the Panama Canal was in a large measure due to malaria. After World War I, the return of troops and the interchange of peoples from malarial areas caused its reappearance in many places in England and Germany, which were for long free of the disease; the same causes have been attributed to the worst epidemic in the history of malaria in Russia! The heavy toll exacted by this malady in World War II is well known to all.

AETIOLOGY:—"Malaria" (bad air) was the name given to the disease, because one of the many early theories was, since it prevailed in low marshy countries, it was caused by the 'poisonous miasma' which rose from the ground at nights. Night-flying biting insects came under suspicion very frequently, Herodotus (484-424 B.C.), the great Greek historian, the "Father of History", referred to the use by the Egyptians of what we call mosquito nets.

* Specially contributed to THE ANTISEPTIC.

It was in 1880, that Laveran discovered and described the malarial parasite. From then on, considerable development of this discovery was made by the Italian workers, Marchiafava, Celli and Golgi. It was they, who demonstrated the different species of the parasite and associated them with the different clinical pictures, though their work was greatly handicapped by the absence of a suitable staining reagent. It was not till 1891, when Romanowsky perfected his staining technique, that the work of the subsequent investigators was facilitated.

The next step was to establish the mode of transmission of the parasite from man to man. Manson, working on the analogy of Fedischenko's suggestion in 1869 that dracontiasis was transmitted through the medium of cyclops, conceived the idea that malaria was transmitted by an arthropod; this theory was further strengthened in 1879 by his discovery of filarial embryos in the mosquito, and in 1883, King in America corroborated this hypothesis.

Grassi in 1890 discovered that the asexual forms of the malarial parasite died in the stomach of the anopheles mosquito but the fertilised gametocytes continued to develop into mature gametes. Grassi thus established that the anopheles mosquito was responsible for the perpetuation and transmission of the malarial parasite from man to man.

In 1897 Ross discovered the pigmented bodies (oocysts) in the walls of the stomach of the anopheles mosquito, which were previously fed on a malaria patient. From then on, discoveries moved fast and in 1898 the Italian workers Bignami, Grassi and Bastianelli demonstrated the plasmodium-cycle in man* and in the anopheles mosquito.

DEFINITION.—Malaria is a febrile disease, which is found in almost every country of the world but chiefly in the tropics and subtropics. The main characteristics are its intermittency and splenic enlargement. It is caused by a plasmodium which is transmitted from man to man by the anopheles mosquito.

It is amenable to treatment with the cinchona alkaloids, more so in combination with iron, arsenic, etc.

Malaria is indisputably the most important public health problem in all tropical, sub-tropical and temperate zones; the incidence is higher in the former two.

One hundred million cases of malaria occur annually in India with a death roll of two millions, according to the statistics given in the Health Survey and Development Committee's Report in 1946. It is more prevalent in the rural than in the urban areas, and the recorded death rate is twice as much in the rural as in the urban areas.

* NOTE:—Please see footnote by Editor, Antiseptic at page 46.

Malaria does not usually occur in areas over 5,000 feet above sea level: Napier however, reports its occurrence in India at a height of 7,000 feet.

Seasonal influences.—Generally speaking, the nearer a place is to the equator the less marked are the seasonal variations in malaria. In Bengal-Assam, the disease is perennial with a steady rise in July/August, reaching its peak in October/November and then falling fairly rapidly. This incidence is no doubt largely influenced by the south-west and north-east monsoons, during which the mosquitoes breed to a greater extent. On the other hand, in the Punjab, the incidence is low during most of the year, with a sharp rise about July, coinciding with the bursting of the south-west monsoon.

Another factor relates to the particular species causing the disease; usually there are more than one. In a survey in Northern India, it was found that the majority of malaria cases in June to August was of the benign tertian variety, whereas from September to December they were of the malignant tertian variety.

Economic and nutritional factors.—There is no doubt that malaria and poverty go together. Economic depressions have been associated with severe epidemics as evidenced by the 1934/1935 epidemic in Ceylon. Corsica, until a short while ago, was experiencing a great increase in malaria after agricultural depression had set in. The Roman Campagna in Italy is a typical illustration. When it had a very flourishing agricultural community, the 'ague fever' was unknown; later when it degenerated and for about 2,000 years thereafter, it was a deadly swamp of malaria: it has now once again recovered its agricultural prosperity and the disease has died out.

Where economic conditions are good, the incidence of malaria is low, if not entirely absent. Development and prosperity are considered to be the factors which expelled the disease from the Godavari and Cauvery deltas in India, from ten districts in England and from the low-lying areas in lower Egypt, Holland and Germany.

Some malariologists contend that malnutrition is a cause of malaria but there appears to be greater evidence in favour of malaria causing poverty, with its sequel—malnutrition. As a matter of fact, malnutrition is rather a "pre-disposing factor" than the actual cause of malaria.

The causal relation of the mosquito to malaria.—There are four essential factors in the natural transmission of malaria:—

- (1) The malarial parasite.
- (2) The malarial mosquito carrier.
- (3) The host.
- (4) The *modus operandi* between the mosquito carrier and the host.

Malarial parasites.—The following four recognised species of plasmodium are known to infect man:—(1) *P. falciparum*—causes M. T. malaria. (2) *P. malariae*—causes quartan malaria. (3) *P. vivax*—causes B. T. malaria. (4) *P. ovale*—causes a particularly mild form of malaria.

There are also other forms of lesser importance of plasmodium such as:—(1) *P. Knowlsi* (the monkey malaria parasite) which can produce artificially a transient malaria in human beings. (2) *P. perniciosum* has been found in South America and is the name given to a smaller strain of *P. falciparum*. It has been found to cause a rather severe type of malaria.

In England, it was noted that malaria produced by a strain from Madagascar was different from that produced by the strain from Rumania. A very striking illustration is the Rome strain of M.T., which is very resistant to treatment. (It was in Rome that the late Prof. Guido Baccelli's extensive experiments resulted in his discovering the renowned anti-malarial drugs).

The forms of the parasite and of the diseases to which they give rise, are divided into (1) Benign and (2) Malignant.

(1) *The Benign parasites* never form crescent bodies, whilst the Malignant, or at least the more important of them, the subtertian, do; i.e., the gamete of the benign parasite is a sphere or disc, that of the malignant parasite rarely gives rise to pernicious attacks, while the malignant parasites frequently do.

There are two kinds of Benign parasites: Quartan, with a cycle of 72 hours, causing the fever to recur every 3 days—"Quartan fever"; the other, the Tertian, with a cycle of 48 hours, causing fever every 2 days—"Tertian fever."

(2) *Malignant parasites*:—A pigmented parasite, the subtertian (Syn: Aestivo-Autumnal of the Italians) of approximately a 48 hours' cycle.

The malarial-mosquito-carrier.—The anopheles mosquito is the carrier of the malarial parasite from man to man. In India there are over 50 species of anopheles but *all* anopheles are not carriers.

From the entomological aspect, the most important anophelene carriers are:—

In India, Pakistan and Ceylon—*A. culicifacies*, *Philippinensis* group, *fluvialis*, *superpictus*, *minimus*, *sundaicus* and *stephensi*.

In Burma—*A. minimus* and *sundaicus*.

Most of the mosquito carriers feed by night, and though they live on plant and fruit juices, the female requires a feed of blood, in order that its eggs may mature; the blood may be from snakes or birds, apart from human beings or mammals.

The mosquito normally does not fly far away from the locality where it breeds and finds its food, but keeps within a radius of about 100 yards or so. Of course, they may be carried by the wind to places some miles away, and it is not necessary for them to return to their breeding place to transmit malaria.

It is easy to recognise an anopheles mosquito from a culex. Usually the former attaches itself to a vertical surface with two pairs of legs, with its body inclined away at an angle, whereas the latter clings closely with all its legs; the legs and the body lie parallel to the surface.

The link between man and the mosquito.—The mosquito must have at least two human blood-meals in order to be able to transmit the disease. Here again economic conditions play a part. For instance, in the well-lighted and well-ventilated houses with electric fans, the mosquitoes, though they may have had a human blood-meal during the night are invariably driven out during the day, and probably do not come back: thus, the one feed is very much diluted and the chances of transmission are greatly diminished. On the other hand, in ill-ventilated and ill-lighted houses of the poor, during the day they remain in the dark corners behind furniture or under beds and emerge early in the mornings or at nights to feed again, the chances of transmission are then very great.

Malarial parasites and their forms in human beings.—The ring form is observed in an R.B.C. as a pale blue disc with a red chromatin dot at the edge of the corpuscle, when stained with Romanowsky's stain: this rapidly increases in size at the same time secreting hæmoglobin and practically fills the whole cell; it is now called a schizont. It will however, be observed the chromatin in the schizont has split up into equal sectors forming a *Rosette*. The next stage is that the rosette bursts and small ovoid bodies are formed called merozoites, which have red chromatin nuclei and a pale blue cytoplasm. The merozoites re-enter other R.B.Cs. to start again the *asexual cycle*, or develop into *sexual* forms—*gametocytes* (male or female), which fill the whole red cell like the schizont.

Cycles of the malarial parasites.—There are two phases and two cycles in the life of the malarial parasites:

(1) The intra-corporeal phase* in the intermediate host—man, and the asexual cycle.

(2) The extra-corporeal phase in the definite host—the female mosquito and the sexual cycle.

These phases and cycles do not correspond with one another but the life cycles of the four species of human plasmodium are practically the same.

* [NOTE:—Col. Shortt's researches in the London School of Hygiene and Tropical Medicine in 1951, have shown that the marshalling point of the malarial parasites is in the human liver.—Editor.]

DIAGNOSIS :—Blood smears for the diagnosis of malaria should be of thick and thin varieties, the former to determine the presence of malarial parasites and the latter for noting their identity. The examination of a thick smear for 5 minutes is roughly equivalent to the examination of a thin smear for 15 minutes. In considering laboratory reports, it should be borne in mind that even several negative examinations are insufficient to exclude the existence of a malarial infection. In such cases, if 0.5 cc. of 1 in 1,000 Adrenalin is given subcutaneously 20 minutes before the smears are taken, or 0.01 c.c. intravenously 5 minutes before, a contraction of the splenic sinuses takes place and the R.B.Cs. are forced into the circulation. If the smears are still negative then no malaria exists.

Malaria should be suspected in people :—(a) Who are residents or transients in a locality where the disease is endemic. (b) Who give a history of an attack during the previous 2 or 3 years. (c) Who have splenic enlargement and anæmia without the cause being known.

History of cinchona.—Quinine is the most important of the cinchona alkaloids. It is uncertain whether the antipyretic properties of cinchona bark were known to the local inhabitants of South America, before the advent of the Spaniards. Though Arrot, who travelled in South America in 1737 believed they were, yet Humboldt in 1807, stated the inhabitants regarded the bark as a dangerous drug and it was exported mainly for the purpose of dyeing cloth; Popping in 1830 and Spruce in 1860 mentioned that the local inhabitants were unaware of the medicinal value of cinchona. Markham stated in 1862 that South American doctors never used cinchona bark.

Until a few years ago, it was the accepted theory that cinchona bark was introduced into Europe in about 1638, by the Countess of Chinchon, wife of the Spanish Viceroy in Peru. Haggis in 1941, in his paper "fundamental errors in the early history of cinchona", referred to in the *British Medical Journal*, 1942, page 1,299, explodes this theory. He states that the Countess of Chinchon never went to Peru, and the wife of the succeeding Viceroy who did, neither had malaria nor used the "*miraculous bark*" and did not return to Europe! However, the story, with some foundation in it, is that cinchona bark was exported to Europe as a substitute for some other drug which had anti-febrile properties and was called "*Quina-Quina*"; it later appeared in England under the name "*Jesuits Powder*."

Soon after the introduction of the drug into Europe, the demand for it became so great that there was some prospect of a total extinction of the plants in South America, and attention was directed to the possibility of cultivating the trees in other countries. In 1860, seeds and plants of cinchona were brought from South America to India and the cultivation of the plant began; similar

attempts were made in Ceylon, Java, Australia and Jamaica ; but the greatest success was achieved only in India and Ceylon.

In 1887, the uncontrolled cultivation of cinchona grew to such an extent that Ceylon alone produced 16 million pounds in that year. Consequently, there was a big slump in the cinchona industry, and the plantations were allowed to go to ruin. Java came through this anxious period safely and up to 1942, was the leading cinchona producer in the world, a position which was chiefly the result of the long-continued chemical and botanical investigations carried out under the auspices of the Dutch East Indian Government. During World War II, the Japanese destroyed large cinchona plantations in Java and so a world-wide shortage resulted ; there are now however, healthy signs of revival.

TREATMENT.—The treatment of malaria is : (1) Symptomatic. (2) Specific.

Both should be attended to concurrently ; the former to alleviate symptoms which distress the patient or interfere with specific treatment ; the latter is directed towards the destruction of the parasites.

The patient ought to remain in bed until the fever is controlled and for two weeks subsequently only very moderate ambulatory exercise, being permitted.

(1) *Symptomatic treatment.*—Hyper-pyrexia is chiefly caused by the sporulation of the parasites and is usually transitory, rarely requiring special treatment. On the other hand, if it persists one has to suspect the cerebral heat centres being affected. Tepid sponging or cold baths may be given and their duration controlled by the rectal temperature. Abundance of cold fluid should be administered and supplemented by sodium chloride. When free perspiration sets in, the patient should be rubbed dry and given dry clothing. Subnormal temperatures should be treated by blankets, hot water bottles and hot beverages.

Constipation in adults may be combated by Hydrarg. subchlor. 3 grs. followed 4 hours later by a saline purge, or the former at bed time and the latter the following morning and this purgation may be followed by daily doses of Liquid Paraffin. Children may be given Hydrarg. cum creta in doses of $\frac{1}{4}$ –2 grs., according to age. Nausea and vomiting in particular may interfere with the oral administration of specific drugs. These conditions may be controlled by cracked ice with or without lime water. If these methods fail, then 0.3 c.c. (5 mins.) of Tincture opii may be given or even 0.3 to 1.3 gm. (5 to 20 grains) of Chlorotone. Oedema should be treated with a high protein diet and icterus with a high carbohydrate and vitamin diet.

(2) *Specific.*—In recent years the specific therapy of malaria has undergone several modifications, owing to the capture in

the recent war of the principal areas of cinchona production by the enemy ; this caused available stocks of the alkaloid Quinine to be reserved mainly for military purposes. Today, quinine is available in more liberal quantities and it can be rightly claimed that it has stood the test of time and is still the sovereign remedy in the fight against malaria.

The specific treatment is parasitocidal chiefly by attacking the schizogonous cycle of the parasites. Effective concentration in the plasma is built up more rapidly with Quinine than with any of the other plasmodicidal drugs.

"Prevention is better than Cure"

As the malarial mosquitoes tend to breed more during the rainy season, it would be advisable to carry out the "Preventive treatment" during that period for those who wish to avoid infection.

Rheumatoid Arthritis: Partial Rehabilitation By Interval Therapy with ACTH and Cortisone

Stone and his coworkers in the Department of Nutrition and Metabolism of the Chicago University Medical School, selected 4 men and 3 women from a large group of patients with rheumatoid arthritis attending the nutrition clinic. These seven were selected on the basis of their fulfilling the following criteria : (1) severe physical handicap to an extent that they could not function without the help of others ; (2) swollen painful tender joints ; (3) loss in body weight and a distaste for food ; (4) characteristic radiological evidence of arthritis ; (5) a raised E.S.R. ; (6) anaemia characterized by 80% Hb. or less ; and (7) normal uric acid level in the blood. In order to rule out those who might benefit by oral or parenteral salicylates, each of the 7 patients was first given an initial dose of aspirin, grains 10 t.i.d., and the amount increased till salicylism developed or 100 grains had been pushed in 24 hours. If no relief was obtained, the patient was given 15 grains of sodium salicylate intravenously daily for 3 days followed by 2.0 g daily for 3 days. Those who were finally selected were chosen because they were determined to fight their disease in order to be able to resume normal life. Each patient went through ten different periods of observation, using normal saline injections, ACTH in saline, pregnenolone and saline, aspirin orally and parenterally, deoxycortone acetate with ascorbic acid plus low sodium intake, synthetic cortisone acetate ACTH. Blood pressure, pulse rate and body weight, were daily determined in each case, and 24 hours' urine was collected and measured. Frequent blood studies made included RBC counts, differential leucocyte counts, haematocrit determinations and ESR, non-protein-nitrogen, sugar, uric acid, cholesterol, serum-protein and albumin/globulin ratio were also periodically estimated. From a careful assay of the results obtained the authors conclude :—

"Seven patients were treated at intervals over a period of 12 months with pituitary ACTH and synthetic cortisone acetate. In each case, the symptoms improved after the injection of adequate amounts of either of these materials. In contrast pregnenolone acetate, deoxycortone acetate and ascorbic acid, aspirin, and placebos produced no relief. After the injections of cortisone or ACTH were discontinued, the symptoms gradually returned. The longest period of relief following a series of injections was 4½ months. After each period of either cortisone or ACTH therapy the relief of symptoms was as great as that which followed the initial period, suggesting that the effectiveness of these hormones does not diminish in a year."—Stone, R. H. *et al*, *Lancet*, 18-11-1950, pp. 555-560.

A PRELIMINARY STUDY OF THE MINIMUM, AVERAGE AND MAXIMUM BLOOD PRESSURE IN INDIANS

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THIS paper presents the result of a study of the blood pressure of 10,000 Indian males of average physique. The study comprises the period from 1942 to 1950.

Out of the 10,000 subjects, 7,600 are Hindus, 1,800 Muslims and 600 Christians; 3,000 were Bengalees (Santhals included), 3,000 Biharis, 2,500 Nepalis, 1,000 Garhwalis and 500 Anglo-Indians, Rajputs, Oriyas, Punjabees and Chinese.

Of the total entrants 3,800 are single, 1,700 are vegetarians, 9,000 smoke or use tobacco in some form or other, and 3,500 take alcoholic drinks regularly, bi-weekly, weekly, on festive occasions or on pay-days only. The high percentage of those taking alcoholic drinks is mainly due to the fact that almost also the Anglo-Indians, Nepalese, Santhals and Garhwalis included in this study are given to this habit—which is very rare amongst the Bengalees and Biharis except perhaps in a few amongst the upper middle classes.

The first blood-pressure table based on Indian male experience was compiled by the Oriental Life Assurance Company of Bombay, over two decades ago and this was based on a study of 1,372 lives only. The average blood-pressure readings in Indians were 126.5; 85; and 41.5 mm. Hg. respectively according to that table. The second blood-pressure table based on Indian experience comprising 10,000 lives (8,105 males and 1,895 females) was published in 1942 by Colonel Sir Ramnath Chopra. According to this table the average blood-pressure readings, in Indians on a mixed diet were 118.7, 72.3 and 46.4 mm. Hg. respectively and in vegetarians 116.2, 72.5 and 43.7 mm. Hg. respectively. The figures given by Sir Ramnath are rather low, as compared with ours. I consider that, the inclusion (a) of the B.P. of 1895 females and (b) of B.P. of hospital patients, probably accounts for the relatively low figures obtained by Sir Ramnath.

In the present study the average systolic, diastolic and pulse pressures in Indians have been found to be 122.6, 79.6 and 43.0 mm. Hg. respectively. In an earlier investigation involving 2,500 male adults, the writer found the pressures to be 123.4, 80.2 and 43.2 mm. Hg. respectively.

In recording the blood-pressures I have used three of the latest types of "Baumanometers" (Wall-type, 300 mm. model and 250 mm. model) generously placed at my disposal by the manufacturers, Messrs. W. A. Baum Co., Inc. of New York. Baumanometers have given a full-meaning satisfaction and perfect service

even under difficult conditions. The standard sleeve-bands supplied with Baumanometers were used but later on the "Air-lock" cuff supplied in advance by the manufacturers for my trial was used. This cuff is now a standard equipment on all Baumanometers. I have also used mercurial and aneroid manometers of other makes, also the "Accoson" armlet and "Tycos" anatomical sleeve-bands. I have found that the "Air-lock" cuff is the best of all, due to its simplicity and unique effectiveness.

The blood-pressures were recorded by me at least two hours after the last meals. Only the auscultatory method was employed and in cases of the slightest doubt, two additional readings were taken, verifying the results by the palpatory method. In extremely nervous individuals (who constituted 6 per cent of the total) the blood-pressures were recorded at an interval of 3 to 7 days in order to eliminate errors due to the nervousness at the first examination. This yielded excellent results. Medical men may profitably try this in their life assurance practice instead of reporting the results of one or two readings made at one sitting at a short interval. I have noticed that in highly nervous individuals the systolic pressure rises temporarily by 30 to 40 mm. in the first one or two readings, but later settles down to normal as evidenced by another reading taken after a few days' interval. Nervousness has but slight effect on the diastolic pressure, say not more than 10 percent. The diastolic pressure is more stable than the systolic and hence even slight variations from the normal are of greater import.

The large number of (over 10,000) persons, whose blood pressures have been recorded here, comprises college and university students, college and school teachers, doctors, business executives, mercantile assistants, Insurance workers, mill workers, members of the West Bengal and Calcutta Police Forces, West Bengal Fire Services, A.R.P. and A.F.S. personnel.

It is a matter for regret that the majority of our Life Insurance Offices do not appear to have given the question of blood-pressure estimations, the serious consideration it deserves. It is strongly

Table of Average Arterial Pressure in 10,000 Adults

Age group years	Number examined	Average systolic pressure	Average diastolic pressure	Average pulse pressure
17—19	480	112.8	75.5	37.3
20—24	2,255	116.3	76.2	40.1
25—29	2,170	118.6	78.0	40.6
30—34	1,473	120.0	78.0	42.0
35—39	1,282	124.4	78.2	44.7
40—44	890	124.9	80.0	44.9
45—49	652	127.6	82.0	45.6
50—54	408	129.4	83.4	46.0
55 and over	390	131.5	85.1	46.4

Table of Comparative Systolic, Diastolic and Pulse Pressures.
(Means of different races in 10,000 Indians)

Races	Number examined irrespective of age	Average systolic pressure	Average diastolic pressure	Average pulse pressure
I. Bengalees	3,000	123.6	79.8	43.8
II. Biharis	3,000	122.0	79.2	42.8
III. Nepalis	2,500	121.5	78.4	43.1
IV. Garhwalis	1,500	121.9	79.0	42.9
V. Anglo-Indians, Oriyas, Rajputs, Punjabees, etc.	500	124.0	82.0	42.0

Table showing Minimum, Average and Maximum Systolic, Diastolic and Pulse Pressures in 10,000 Indians in Different Age Groups

Age group years	SYSTOLIC RANGE			DIASTOLIC RANGE			PULSE PRESSURE RANGE		
	Minimum	Average	Maximum	Minimum	Average	Maximum	Minimum	Average	Maximum
17-19	103.8	112.8	124.5	68.4	75.5	81.5	35.4	37.3	43.0
20-24	104.4	116.3	127.9	69.2	76.2	82.4	35.2	40.1	45.6
25-29	106.7	118.6	130.6	70.6	78.0	83.4	36.1	40.6	47.2
30-34	108.5	120.0	133.0	71.2	78.0	84.6	37.3	42.0	48.4
35-39	110.9	122.4	135.7	72.5	78.2	86.0	38.4	44.7	49.7
40-44	113.6	124.9	136.4	74.6	80.0	86.4	39.0	44.9	50.0
45-49	116.2	127.6	138.5	76.0	82.0	87.1	40.2	45.6	51.4
50-54	118.0	129.4	140.3	77.6	83.4	88.6	40.4	46.0	51.7
55 and over	119.4	131.5	142.6	78.0	85.1	91.2	41.4	46.4	51.4

recommended that blood-pressure readings should be taken and recorded in all persons proposing to insure their lives, irrespective of their age and the sum proposed. This simple procedure would greatly reduce premature death-claims by at least 50%, by bringing to light concealed risks, due to cardio-vascular and renal affections.

The above table is the first of its kind for our country, and so far as I am aware no such table has been prepared with British experience. The figures on either side of the average column represent the extremes—minus or plus within which a subject may be considered normal for life assurance acceptance, if the relative pulse pressure is maintained. It is well-known that normal blood pressure, therefore, does not require the applicant to come exactly within the average figures, but he should come within certain extremes of systolic and diastolic readings, while, maintaining a relative pulse pressure. Generally speaking, as was long ago pointed out by Dr. F. A. Faught, the systolic, diastolic and pulse pressures should approximate the relationship of 3:2:1, i.e. systolic 120, diastolic 80 and pulse pressure 40, although slight variations from these, are however, compatible with the normally functioning cardio-vascular system.

Standard blood-pressure tables, though handy for reference are hard to memorise. Hence, whenever one comes across a case in which the blood-pressure is other than ordinary, it is highly desirable to apply some easy formula to determine what is approximately the normal pressure for a given age. In England and America there are many such formulæ in vogue, but in India we have had no such formulæ. Our medical men follow the formula of Sir Humphry Rolleston (i.e. the maximum systolic pressure of a person may be obtained by adding 100 to the age, and the diastolic pressure may be taken as 2/3 of the systolic (*Lancet*, 10-3-23). Unfortunately this formula of Sir Humphry is erroneous and so inapplicable particularly in the case of Indians.

In 1941, the writer with great diffidence suggested, through the medium of different insurance journals and periodicals to the members of the medical and actuarial professions that a close approximation to the systolic pressure can be had by taking for each instance (age 20 to 60 years) the basic figure of 108 and adding half the age of the proposer, fractions being ignored. Diastolic pressures can be obtained by taking the basic figure of 76 (age 20 to 60 years) and adding one-fifth of the age. These theoretical figures of mine, compare very favourably with those of the Oriental Life Assurance Company, and also of Drs. Brandreth Symonds, John W. Fisher, F. A. Faught, L. F. Mackenzie, Oscar H. Rogers, Arthur Hunter, J.F. Halls Dally, Harry P. Woley, and Mr. Lewis Potter Orr. American experience, also corroborates my figures.

References :

1. Dotto, B. B.—Indian Medical Gazette, 83, 78.
2. Dotto, B. B.—Indian Medical Gazette, 84, 238.

Treatment of Paralysis Agitans with "Benadryl"

Dalsgaard—Nielsen records the results of treatment with 'Benadryl' in 15 cases (6 severe, 6 moderately severe, and 4 mild). The dosage was 50 mg. thrice a day and in a few cases 50 mg. four times a day. The observation period was about 6 months and in 2 cases 3 months. Vertigo, general malaise and fatigue were observed as side effects only in one case. There was no alteration in the leucocyte count.

Therapeutic effect:—The general condition, the rigidity and the oligo-bradykinesia were considerably improved in 50% of the patients moderately improved in 15 to 25% and slightly improved in 10% of cases. In 20% there was no improvement. The results of this treatment taken as a whole were surprisingly good. The treatment was found to have virtually no effect on the tremor.—(*Nord. Med.*, 44, 1526-1527, 1950. *Author's Summary*).

Cases and Comments

NEPHROTIC SYNDROME TREATED WITH ACTH

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THE treatment of nephrotic syndrome in children is necessarily symptomatic. For some of the outstanding symptoms like oedema etc. during acute attacks, many remedies are used including antihistamines, ephedrine, thyroid, mercurial diuretics, Penicillin, Streptomycin and other antibiotics. A high protein diet is given to combat the drain of the proteins from the tissues through the urine. The diet is made as free from salt as possible in order to minimise salt retention. Recently the effects of Cortisone and ACTH on the nephrotic syndrome have been studied and some favourable reports made in America. Farnsworth¹ reported profound diuresis in the case of a 3 year old child who had the nephrotic syndrome by administering 3 courses of 50 mgm. of ACTH daily for four days. Barnett and his associates² state that typical diuresis of water and sodium occurred either during the administration or the withdrawal of ACTH. Doses of 50 to 100 mgm. of ACTH daily for seven to ten days induced diuresis thirteen times in thirteen trials on 8 patients, whereas Cortisone tried on 5 children did not produce a similar result. Some cases of glomerulonephritis with oedema treated with ACTH improved as regards excretion of water, chloride and sodium.

Encouraged by these reports of definite clinical and chemical improvement, and finding that other methods using the usual drugs for the treatment of nephrotic syndrome were of little or no use whatever, it was decided to use ACTH on the following case. (The supply was obtained through the courtesy of Messrs. Juggat Singh's Son & Bro., 21B, Keval Mahal, Marine Drive, Bombay).

CASE REPORT.—Beena Bakshi, aged 3 years and 9 months, developed oedema of the eyes for the first time one year ago. This swelling subsided 48 hours after giving a laxative. The urine was not tested. After about a month, the oedema of the eyelids reappeared. No prodromal symptoms were present. The parents tried the laxative again without any relief. The swelling gradually spread all over the body and the urine showed a large quantity of albumin. The child was removed to the hospital where she had 4-hourly Penicillin for four days with Antistine by the mouth. In about eleven days, the oedema disappeared and the urine was clear of albumin. After discharge from the hospital, the oedema reappeared within 48 hours and the quantity of urine diminished to 2 or 3 ozs. daily. A detailed examination of the urine showed albumin + + +,

both hyaline and granular casts + + + a few R.B.Cs., and a large number of pus cells. She was again put on Penicillin and Antistine, in addition to a salt and protein-free liquid diet. She was also given thyroid and a diuretic mixture with ammonium chloride. After the above treatment was continued for about a month, free diuresis occurred all of a sudden and the urine became protein-free. Blood urea, fasting, showed 34 mgm. per c.c. In February 1951, she suddenly developed acute constipation with a diminishing quantity of urine. She had listlessness and vomiting which lasted for ten days. The previous treatment was repeated except that the thyroid was not given, but Digitalis instead, to steady and bring down the pulse rate which remained persistently high. This attack subsided after about a fortnight and the patient remained without any oedema or other symptoms for two months. In April 1951, another attack of oliguria with albuminuria came on with hyaline and granular casts, and pus cells and rare R.B.C.; following an attack of obstinate constipation. This attack persisted for a month after which the patient started running a low grade temperature in addition. Aureomycin was started and in all 12 g. were given. There was no increase in the quantity of urine which remained at 2 or 3 ozs. daily; generalised oedema increased and was more on the face. A low grade temperature, persisted with albumin and casts in the urine. In the middle of June 1951, she was put on Streptomycin $\frac{1}{2}$ gm. b.d. for ten days, and a daily short-wave application to the loins, in addition to the general treatment. With this treatment, the temperature was controlled and the quantity of urine increased to about 8 oz. daily. The albumin and casts and other blood pictures however, remained the same; the generalised oedema also persisted. On the 1st of August 1951 a dose of 0.25 c.c., of Mersalyl was given I.M. The output of urine during the next 24 hours increased to 56 ozs. The oedema also decreased slightly. On the second day after the Mersalyl injection the quantity of urine diminished to 30 ozs. again and the urine still showed plenty of casts and pus cells and also a few red cells. A repetition of the Mersalyl injection was considered unsafe and was not given. In the meantime supplies of ACTH were procured.

Her condition on the day of the starting of ACTH (8th August) was as follows :—

Her weight was 31 lbs.; there was generalised oedema of the body with a protuberant abdomen, swollen eyes and legs; albumin, casts and pus cells present in the urine which was scanty, only 10 ozs. daily. Temperature was 99.2°F. She was given 20 units of Corticotropin (ACTH) every eight hours. After 24 hours, the quantity of urine diminished to 3½ ozs. in 24 hours, although the liquid intake remained at 20 ozs. The weight increased to 31½ lbs. On the third day of the injections the last dose could not be given due to unavoidable circumstances. The urine output increased to

15½ ozs. while the fluid intake was 19 ozs. As diuresis had already started the injections were omitted for the fourth day. The total quantity of urine was 22 ozs. The urine was very light in colour but still contained albumin as also hyaline casts. The oedema became very much less. The patient developed acute pain in the leg, wherefrom the fluid had been drained. On the fifth day, the injection of ACTH was restarted. The diuresis increased to 48 ozs. in 24 hours. The body weight was reduced to 22½ lbs., and there was very little of the oedema left. The total fluid intake was now 26 ozs. The temperature fell to 97.2°F. The urine still contained traces of albumin, but no casts. On the sixth day, the urine became absolutely free of albumin, casts, red blood cells or pus cells. The intake was 24 ozs., and the output 25 ozs. This progress was maintained till the ninth day when her body weight came down to 24 lbs. She suddenly developed fever 101°F., with an attack of acute dysentery. The injections had to be discontinued and the dysentery was treated with Bismuth-chalk mixture. The quantity of urine was 28 ozs., but again showed albumin, hyaline and granular casts, and leucocytes. No injection was given on the next day and the condition remained the same as on the previous day but the temperature had come down to 97.2°F. Injections of ACTH were again started from the afternoon of the 11th day of the start of this treatment. There was no oedema but the quantity of urine remained at 18½ ozs. Albumin and casts persisted. The fluid intake was 26 ozs.

On the 12th day, protein hydrolysate was started orally as the patient was feeling very exhausted. The pulse rate increased to 120 p.m. and became very low in volume and tension. She was also put on Digitalis and Coramine orally which improved her pulse considerably in 36 hours. The rate fell to 100 per minute and the volume and tension improved considerably. The improvement in the urine and general condition was maintained till the end of sixteen days, when the course of 36 injections of 20 units 3 times a day was finished. She started gaining weight and reached 28 lbs. without any swelling in the abdomen, body or eyes and without any change in the urine. She was then allowed to take some solid food in the form of chapattis and vegetables cooked without salt. She again developed slight pain in the abdomen with a slight decrease in the output of urine which showed albumin in traces, five days after the stoppage of ACTH treatment. There was however, no oedema. This condition improved after a control of the diet and the urine once again became albumin-free. She was given a further three injections of ACTH, left over from the previous treatment which gave her further diuresis and made her urine albumin-free. Like other reports in the literature this hormone has given encouraging results in this case where all other known forms of treatment had been tried and failed. It

is as yet too early to say what permanent results may be expected from this wonder-drug.

A report from the parents four months after the start of the treatment shows no albumin or casts in the urine. The patient is reported to be symptom-free, there is no oedema anywhere and she is eating practically normal diet (in limited amounts).

Summary.—The case is reported of a child about 4 years of age with a nephrotic oedema of one year's duration, treated successfully with ACTH (20 units three times a day till 36 such doses are given). ACTH is supposed to relieve the oedema by first retaining the salt and fluid in the body and then on sudden withdrawal of the treatment the retained salt and fluid is excreted along with the fluid of the oedema. This effect is supposed to be temporary, but in this particular case the result seems to be lasting as the patient is still albumin and symptom-free (four months after stopping the treatment). Thus, ACTH appears to have a useful place in the treatment of the nephrotic syndrome.

References :

1. Farnsworth, Edith B., Studies on the Influence of Adrenocorticotrophic in Acute Nephritis, in simple Nephritis and in Nephrosis with Azotemia. In Mote J. R. Proceedings of First Clinical ACTH Conference Philadelphia, 1950, pp. 297-317.
2. Barnett, H. L. McNamara, Helen, McCrory, Wallace, Foorman, Carolyn, Rapoport, Milton Michie, Alexander and Garbero, Giulio. The Effects of ACTH and Cortisone on Nephrotic Syndrome, Am. J. Dis. Child., 80; 519-520 (Sept.)
3. Keith, H. M. Types and Treatment of Nephritis in Children. M. Clinica North America, 35, 1069-1079, (July 1951).

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Streptomycin in Pulmonary Tuberculosis

Weitzman and his co-workers record their results on the use of streptomycin in 114 unselected cases of pulmonary tuberculosis. The drug was used in the type of case, which could not be expected to improve with rest, collapse therapy and other conventional procedures. It was used in acute, spreading, mainly exudative, and often bronchogenous types of lesions in which collapse therapy is inadvisable or likely to cause such complications as empyema or atelectasis.

The patients were given 1 gm. daily (2×0.5 gm. doses) the total dose in most cases was 90 gm. This was given at first without interruption until the course was completed; later it was given for 14 day periods with 4 day rest in between. When rapid improvement occurred or when none was noticeable; treatment was often interrupted after only 40 to 50 gm. had been administered. Seventeen of the last set in the 114 patients were also given P.A.S. Of the 114 patients with pulmonary tuberculosis 79 were greatly improved. Streptomycin proved of particular value in acute exudative and endobronchial tuberculosis.—(*Br. Jour. Tuberc.*, 44, pp. 98-104, 1950).

PENICILLIN IN TUBERCULOSIS

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PENICILLIN is now so widely used in all chest complaints with or without fever, that a word of caution seems to be necessary in view of the experience gained in the following case. Unger and Mugglestone (1946) have already reported that they found that Penicillin stimulated the growth of micro-bacterium tuberculosis *in vitro*. Though others have contradicted this finding, this case would appear to corroborate it. I am therefore reporting this case at some length.

M. N., aged 44, a gang cooly on the Railway was first seen on 11-3-1949, with multiple suppurating sinuses around his neck in the lower two-thirds of the anterior and posterior triangles. These communicated freely with loose pieces of the intact integument covering them. On pressure, a thick creamy pus was expressed. He said that he had these for about 2 months. There were linear scars with hypertrophied pigmented cicatricial tissue in the left axilla and in the pectoralis region, which evidently represented the scar tissue of previous similar lesions in these areas also. He complained of a low evening rise of temperature.

A smear from the discharge from one of these sinuses was negative for A.F.B. and for actinomycosis. It contained only pus cells, predominantly polymorphs. His haemoglobin was 68% and the blood picture revealed a hypochromic normocytic anaemia. The B.S.R. was 32 m.m. in one hour (Westergreen) and the differential white cell count was P. 83, L. 9, M. 6, E. 2. The urine and stools did not show anything abnormal. The Kahn test was also negative. A tentative diagnosis of T.B. of the glands was made and the following treatment was instituted.

Sharkliver oil emulsion one ounce t.d.s.

Sulphadiazine 0.50 : 4 stat and 2 every 4 hours, with alkalies in the usual dosage.

This treatment was continued for 5 days. During this time, it was observed that his temperature rose to 100°F., between the hours of 4 p.m. and 10 p.m. Sulphadiazine did not have any action on this rise neither was there any change in the sinus condition. He was therefore, started on a course of Penicillin 20,000 units every 3 hours. This had the desired effect. The sinuses showed signs of healing and the temperature remained within normal limits. About 2 mega-units of Penicillin were then administered for 12 days. The sinuses were first dressed with iodoform in sterile paraffin. This did not do much good and so he was later dressed with Penicillin saline solution (500 units in 1 c.c.) The

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patient was discharged on 9-5-1949 much improved in his general health and the sinuses nearly closed.

He came a month later on 8-6-1949 with an exacerbation of his condition. There were now painful enlarged glands below the ramus of the mandible on either side and many more in the anterior and posterior triangles of the neck on both sides. The hypertrophied scars under the left axilla previously noted had also broken up, discharging a thick creamy fluid. His general condition was also not satisfactory. He was readmitted and was put on Sulphanilamide in adequate doses this time. He was altogether for 12 days with us, during which time the sinuses again showed signs of healing but his general condition continued to be very poor. His sputum was examined repeatedly for A.F.B. and found to be consistently negative. He came again on 13-7-1949 and was sternly told that he should make up his mind to stay on till such time as his sinuses completely healed. On this occasion, his neck and the upper part of his chest were exposed to the sun's rays between 8 and 8-30 a.m. and iodoform and paraffin dressings were given. He was given a nutritious diet with additional multivitamins and sharkliver oil. After about a month's stay the sinuses healed completely and his general condition also improved remarkably. He was therefore, discharged improved on 2-8-1949.

Nothing was heard about him till 22-1-1951, when he was brought late one night in an almost moribund condition. He had been under the treatment of a local doctor at his place for a week previously. Not finding any improvement after a week's course of Penicillin (2 lacs daily) the doctor had him transferred to this hospital. He was extremely emaciated and could hardly recognise people around him. He had a feeble pulse, about 140 p.m. Respiration between 40 and 60 per minute, and his temperature ranged between 102°F. in the evenings and 98°F. in the mornings. The sinuses had again broken up around his neck and in the left axilla. His chest was hyper-resonant and a few fine crepitant rales were heard over the right apex. The breath sounds in the middle third over the right side, were rather harsh (tendency to bronchial breathing) otherwise there was nothing special to note. The other detailed examinations revealed the following:—B.S.R. 88 m.m. in 1 hour; urine and stool n.a.d.; Hb. : 40%; T.W.B.C. 6,500 m.m.; D.W.C. P. 75; L. 14; M. 2 E. 4; and his sputum was negative for A.F.B. A smear from the sinus discharge also did not reveal anything abnormal. Since he was already on Penicillin it was decided to continue it in 50,000 units doses six hourly. Forced feeding was resorted to. There was no improvement in his condition till 28-1-1951. If anything, he showed signs of a general flare-up. The Penicillin was therefore, discontinued and he was put on a course of Sulphathiazole in adequate doses. The lung condition improved under this treatment but the general condition gave cause for alarm. Even forced

feeding was becoming impossible; glucose with protein hydrolysate was therefore, started. His T.W.C. at this stage was 12,000 cm.m. Sputum examinations were repeatedly negative for A.F.B., and showed mainly lymphocytes. Under sulpha drug, his temperature remained within 100°F. but there was no change in his general condition. Since the total white cell count was increasing, a further attempt with Penicillin was thought advisable and this time one lac units every 4 hours were given. His sputum was examined daily all this time with a negative result, but suddenly, on the 3rd day of re-starting Penicillin, it showed acid-fast bacilli, scanty at first but quite abundant subsequently. Penicillin was therefore, stopped. The patient's condition grew worse. There were now confluent rales on both sides. Dihydrostreptomycin, 1 gm. daily in 2 doses, was started but the patient expired after 3 days of starting the same.

Comments.—After a critical examination of this case, one gets the impression that every time when Penicillin was administered to this patient, there was a flare-up of his latent T.B. infection. In March 1949, when Penicillin was first administered to this patient, it undoubtedly helped in clearing the extraneous infection. But it resulted in the breaking-up afresh of the old healed-up lesions (in the left axilla and below the chin). On 22-1-1951, it was noticed that these very same lesions again broke up after the administration of Penicillin; nor did it stop there. The debilitated condition of the patient presumably stimulated the old healed-up lesions in his chest into activity. That alone would account for the appearance of T.B. in the patient's sputum, just a few days prior to his death. No other mechanism except this, would explain the sad chain of events, set forth above.

I am grateful to Dr. E. G. H. Koenigsfeld, Chief Medical Officer, Barst Light Railway for allowing me to refer to his notes on this case and to Miss. D. Fernandez and Miss. Indu Kulkarni for helping me to compile this article for publication.

Headache and Autonomic Imbalance

Hilsinger considers autonomic imbalance is a major contributing factor in vascular headache. During the acute attack good results may be obtained with ergotamine tartrate or dehydro-ergotamine. Rest and removal of undesirable environmental stimuli is the preferred method of prolonging the quiescent period of frequently recurring vascular headaches. Where this is not practicable, a combination consisting of a sympathetic inhibitor (ergotamine tartrate) a para-sympathetic inhibitor (bellafoline) a central and subcortical sedative (Bellergal) has been found to be very effective for the purpose.—(*Laryngoscope*, 61, 296, Apr. 1951).



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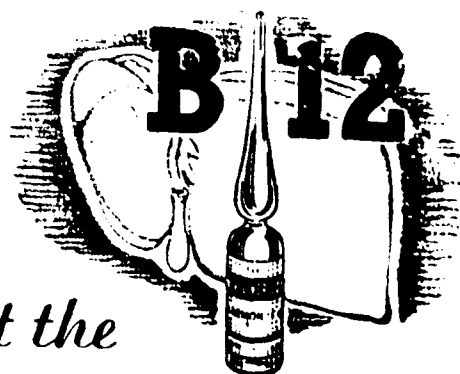
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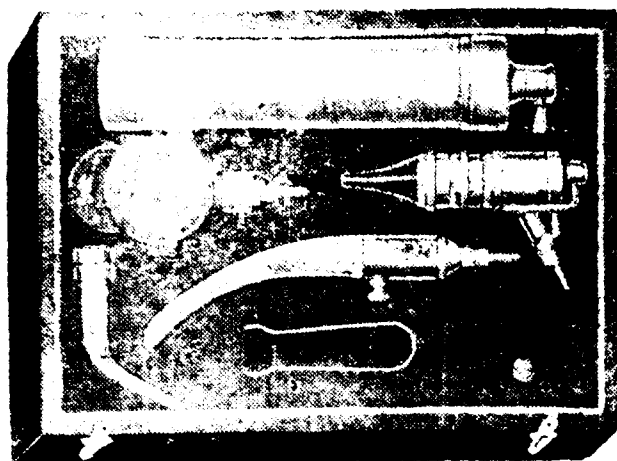
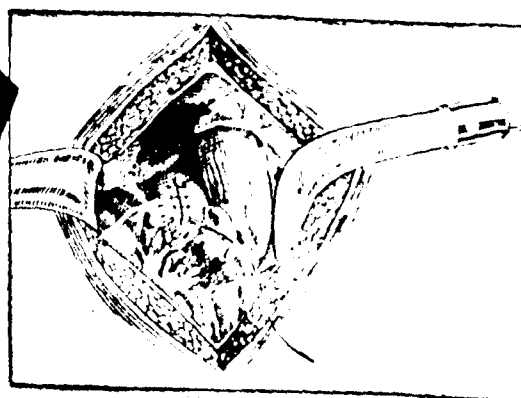
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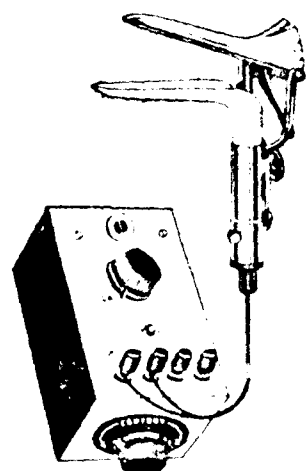
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A TYPICAL CASE OF HYSTERICAL AMBLYOPIA

K. S. GHASWALA, L.M.S.,
Ophthalmic Surgeon, Bombay.

Miss X, aged 13½, the daughter of a medical man, was brought to me by her father with the following history.

HISTORY:—She went to school (which is very near her residence) in the morning as usual but suddenly in the afternoon she complained that she could not see well and the black-board appeared shining to her; she said she could not even see to walk back home and hence the teacher sent two students with her to escort her home. When the father came home, he consulted a brother physician who advised him to give her a purgative and gave some eye drops. The next day however the condition remained the same, and she was brought to me, led by the hand by her father as she could not see the stairs.

EXAMINATION:—Vision of both eyes was only a few feet and she could hardly read J 6. The corneae and conjunctivae were perfectly normal and there was no congestion.

DARK ROOM EXAMINATION:—The reaction of the pupils to light, both direct and consensual, was very good; so also was the projection, though at first she said she could not see even the light but by a little persuasion she could see the projection of light in all directions. The fundus was perfectly normal in both eyes so also were the lens and vitreous. The refraction in both eyes was +1½ without homatropine dilation. In fact, there was absolutely nothing found to account for her sudden loss of sight. From the neurotic temperament and behaviour of the girl I thought it may be a case of hysterical amblyopia and I asked the father to give me the family history of the girl. It was as follows:—The girl has a step mother and very often the two disagree on trivial points when the girl quickly gets excited and angry. On the morning of the day in question the mother and daughter had some differences and the girl went to school in a rather angry mood. After hearing this story my diagnosis was confirmed. So I tried to take the patient into my confidence. First, I rebuked the father for not bringing her to me on the very day and then I told him that owing to his delay she will not be able to read all the letters on the test type at once but after putting some drops and giving her spectacles she will be able to see two or three lines of the board. Then, I put a drop of Lotio Acid Boric in both eyes and told the patient to keep her eyes closed; in the meantime I began to talk with her father in her presence, and told him that her disease was not of a very serious nature and that after the drops and perhaps with spectacles she will be able to see. After a few minutes I asked the girl to open her eyes and assured her that she must be

able to see much better now, to which she replied in the affirmative. Then I took her to the dark room and re-examined her—she could walk to the dark room now without help—and then I tried her vision outside with a plane glass with which she could read with each eye 6/12 and when the glasses were removed 6/18! I told her father to put the drops I prescribed (Lotio Acid Boric) in both eyes thrice a day for two days and then bring her back to me when I assured her she will be able to see all right. The drops of Acid Boric lotion were given as a placebo, as it was not advisable to tell the patient that nothing was the matter with her.

When she was brought back to me three days later, she was quite happy to inform me that she was all right and when examined could read 6/6 and J 1 with each eye clearly. Now, the history detailed above, does not mean that the patient was shamming; it shows rather that the psychical inhibition to the function of sight was withdrawn by the suggestion given by the drops and the spectacles.

THE DIAGNOSIS OF HYSTERICAL AMBLYOPIA:—The following points are useful:—(1) The absence of any marked changes in the eyes with defective vision. (2) The field of vision is contracted and differs in both eyes. Inversion of colour-fields is often present so that the field for red is wider than that for blue. (3) The pupillary reflex to light (reaction) is retained even when the blindness is complete. Besides these, there are generally other evidences of hysteria or neurasthenia which render the diagnosis more certain and which help to distinguish between simulation and hysterical blindness.

This condition is chiefly found in young persons and more especially in girls. *The prognosis* is generally good.

Primary hyperparathyroidism: Diagnosis of:

The differential diagnosis between primary hyperparathyroidism with secondary renal changes, from metastatic calcium deposits and the hyperparathyroidism that results from chronic renal disease is not always easy to make. In both conditions there may be weakness, anaemia, osteoporosis, renal insufficiency, elevated serum calcium and phosphatase with normal or even low serum phosphate. In the primary type the symptoms of musculoskeletal instability including bone pain, are apt to ante-date the renal symptoms; the serum calcium and calcium excretion are usually higher than in the secondary type. In secondary hyperparathyroidism the history of kidney disease ante-dates all other disturbances; acidosis and nitrogen retention are well marked. The differential diagnosis is of utmost importance because surgical removal of a parathyroid tumour can cure the primary type.—(*Bull. New. Eng. Med. Center*, June 1951.)

A TYPICAL CASE OF RHEUMATIC FEVER WITH AFFECTION OF THE HEART

B. K. SEN, L.M.F.,

Asst. Surgeon, Rly. Dispensary, Dabhoi, Baroda.

One morning when I was in my dispensary, a girl aged 11 years, the daughter of an engine driver, was brought to me, being carried by her father in a 'Pick-a-lack' fashion.

The patient was in a prostrate condition. She looked quite indifferent to her surroundings. When she was put on the bed, she was supporting her left ankle joint very cautiously, even before it touched the bed.

History of the case:—(1) High fever with slight chill. Duration—four days. (2) Right wrist joint swollen and painful, from the time of the onset of temperature. The temperature became normal on the 3rd day when the left ankle joint got very painful and swollen. (3) She had agonising pain all over her body, more markedly on the chest.

Family history:—Revealed nothing.

Past history:—A few months back she had an attack of malarial fever, which was cured by proper treatment.

Present illness:—The patient had a high rise of temperature associated with a slight chill and agonising pain all over the trunk especially more marked on the chest in the left nipple regions. Duration four days. The onset of temperature was gradual and continuous with slight variations. The right wrist joint got swollen and painful with the onset of the temperature, which subsided totally on the 3rd day, when a similar affection of the left ankle joint took place. The patient felt excruciating pain all over the body during any change of posture in the bed. She had profuse sweating on the first two days. She was treated by some quacks without any relief. She also complained of palpitation of the heart.

On examination:—The patient was in fair health but looked extremely prostrated. She was quite indifferent in responding to my questions. She was slightly perspiring at the time. The temperature under the tongue was 100.8°F. The tongue was moist but coated with a white fur.

The tonsils:—Right side hyperæmic and enlarged. Left side a little swollen. She was anæmic. Spleen and liver—N.P. Lungs—N.P.D. Respiration—normal. Pulse 125 p.m. $\frac{V}{T}$ =good.

Heart:—The first sound was completely replaced by a murmur which was heard all over the heart region, but more markedly at the apex.

Abdomen:—Lower part hard; bowels had not moved for three days. Urine was scanty and yellowish in colour. The appetite was bad; no relish or inclination for food.

Right wrist joint:—The skin was wrinkled and shrunken but there was no pain or tenderness.

The left ankle joint was much swollen and painful, and was hot to the touch. Tenderness was so marked that the patient would not even allow me to handle it.

P.D.:—From the typical mode of onset of temperature with affection of the joints, acute rheumatic fever was provisionally diagnosed.

TREATMENT.—(1) S. S. Mag. sulph 3 vi stat. (2) Sodium salicylate was given in large doses.

R Soda Salicylas	.. gr xv
Soda Bicarb	.. gr xv
Spt. Ammon Aromat	.. ℥ v
Aqua Chloroform	.. ad 3i
Fiat mist; send 4 such; one dose 4 times a day.	

(3) Locally for the joint: The joint was wrapped in wool and dry fomentation applied to the part 4 hourly. (4) Mandel's paint was applied to the tonsils, thrice daily. (5) The patient was ordered to be kept at rest in bed: even the calls of nature were to be responded to in the bed pan only. (6) Diet—only milk and fruit juice (*e.g.* orange, musambi and lemon.)

Next morning, the patient appeared more cheerful and answered all questions. The swelling on the left ankle joint had greatly diminished and there was no tenderness present.

She was afebrile on the 3rd day of the treatment and the joint pain had totally subsided. The Soda salicylate mixture was continued.

On the 4th day of the treatment, she had vomiting, whenever she took the Soda salicylas mixture, which may perhaps have been due to salicylism. This mixture was stopped and she was given instead, Mist Ferri et Ammon Citras 3 vi B.D.P.C. She did well on this. So it was continued along with Iron and Vitamin B Complex—1 tube B.D. She has had no relapse so far. Removal of the tonsils was recommended.

Discussion.—The typical history and the mode of onset with temperature and affection of the joints give the clue to the diagnosis of the case. Here the heart also had been affected. The actual fever immediately responded to Sodium salicylate, which is the sheet anchor in the treatment of such cases. Drug reaction-Salicylism however appeared very early in this case. A course of Iodide will be given when the anæmia improves.

AN INTERESTING CASE OF CHRONIC AMŒBIC DYSENTERY WITH ABDOMINAL TUBERCULOSIS

S. K. DAS, M.B., B.S.,

Lohamandi Municipal Dispensary, Agra.

ON 15-7-'51 I was called on to see a case, a young Hindu girl G. K., aged 18 years, complaining of fever 99.4°F, with blood and mucus in stools and severe pain in the abdomen for the last four days. She had diarrhoea with blood and mucus on several occasions during the last four years. I gave her Thalazole, Castor oil and Bismuth Emulsion with Tr. Belladonna, but she vomited each dose and could not even retain water. The next day a *vaid* was called and she was under his treatment for a fortnight with no effect. Another physician who was consulted diagnosed her case as typhoid and she was put on chloromycetin, duracillin morning and evening, Thalazole and simple diaphoretic mixture. She was also given Glucose 100 c.c. with Redoxon 5 c.c. daily. In spite of all this her temperature continued between 99°F and 103°F and vomiting was persistent. She was not retaining even water. She was under this treatment for a fortnight.

On the night of 18-8-'51 she had unbearable abdominal pain and vomiting and I was again called at 11 p.m.

On examination:—Her temperature was 101.5°F; she was very weak and emaciated and a lump in the right iliac fossa was detected. There was rigidity and tenderness. Tongue was bright red with ulceration on the margins.

Family history:—Mother died of pulmonary tuberculosis—10 years back.

I put her on Belladenal tablet at that odd hour. I got her stool examined considering it to be a case of chronic dysentery.

The report stated:—Reaction—acidic; mucus present. Cysts of *E. histolytica* present in fair number, Charcot-Leyden crystals in large number. Polymorphs in large number, red cells in fair number; bacterial flora raised.

TREATMENT.—I kept her on injections of Emetine 1 gr. and strychnine 1/60 gr. Nothing was given by mouth as she was not retaining any thing. Her nourishment was only injections of Glucose and Redoxon. After 10 injections I again got her stools examined and the report was:—Reaction—neutral. No mucus. No *E. Hist.* or cysts detected. Large number of degenerated polymorphs, stray red cells, fair number of macrophages, Charcot-Leyden crystals were present. Bacterial flora normal.

By these injections her general condition improved. There was no pain, no rigidity. Lump was palpable but small in size.

Temperature was between 97°F. and 100°F. The number of stools decreased to 2 or 3 a day. Her vomiting continued even after giving one thing after another *e.g.*, Liqr. Adrenalin hydrochlor, Hydrocyanic acid, minim doses of Vin. Ipecac, Tr. Iodine Rect., Bism. Carb. and Dover's powder.

Considering this to be a case of psychological vomiting I threatened her with an operation on her neck and to my surprise her vomiting ceased and the following day, she was able to retain fruit juices and *mattha*. I then gave her a course of Enteroquinol and Beceden tablets. She could retain them.

Again on 7th September '51, she got pain in her abdomen. I examined her again, the lump was slightly enlarged, and tender in the right iliac fossa, fever was 100.4°F. I kept her on Streptomycin 1/2 gram morning and 1/2 gr. evening and on Bismuth and Paraffin Emulsion and general tonics. She has had 28 grams of Streptomycin so far and she is fast improving in health. She has gained weight and is able to walk. There is no temperature, no lump, and she is still continuing the treatment.

POINT OF INTEREST:—May I know from my fellow practitioners, if the above was a case of psychological vomiting or if it was due to some other cause?

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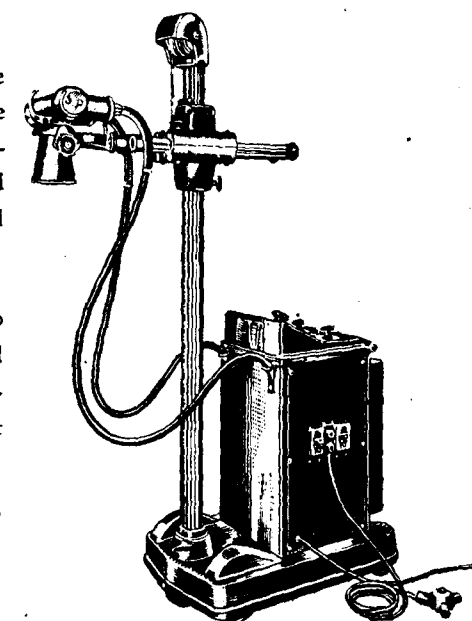
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THE NEW YEAR 1952

(A RETROSPECT AND PROSPECT)

THE old year has ended and the new has opened with the general elections in full swing under the new constitution. People clinging tenaciously to the past but the spur of better times to come spells progress. This sentiment is uppermost in our minds particularly at the passing of the old year and the coming in of the new.

It looked at one time during the twelve months that have come to an end, that the world would be enveloped again for a third time in the chaos and conflagration of a global war and that Korea would set the tinder alight. President TRUMAN made a terrific declaration that the mighty atom bomb might be pressed into service, if necessity arose and the English Premier Attlee convulsively rushed to Washington. The beginning of the New Year saw Mr. CHURCHILL meeting TRUMAN in U.S.A., on another mission altogether. India and Pakistan were on tenterhooks for some weeks with the menace of war but good sense prevailed ultimately. The cold war is, however, raging around us in all its glacial fury and rearmament is proceeding apace, albeit blindly. We are thankful, however, that the third war did not materialise. So we have drifted wearily but cautiously into the New Year, in the full hope and firm belief that the Congress in India will be returned to power both at the Centre and in nearly all the States, although in some with a reduced majority. Now is the time, as our worthy Prime Minister the Hon'ble Mr. JAWAHARLAL NEHRU envisaged the other day, for the Government and the opposition to pull together as a team, in the interest, not of the party but of the nation. Then and only then, would it be

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possible to achieve abiding results of value, in every sphere of activity connected with the economic, moral, physical and social welfare and progress of the people of this, our ancient country which has only recently acquired its independence.

The internal problems of our country are many and varied. Mass unemployment, agrarian problems, illiteracy, poverty, chronic malnutrition, ill-health and a rapidly mounting increase of population have all been endemic and are yearly on the increase. The Year 1951 threatened to be one of severe famine and consequent starvation for the whole of India. The New Year has opened with no brighter prospects, and the country's basic problem is thus vitally bound up with agrarian reform, mass education, a drive for better health and the relief of unemployment by diverting the idle and unemployed persons into productive channels. What hope the new year 1952 holds for India's long-suffering millions in the above directions cannot be predicted with certainty, as it will depend largely on the extent to which the planning programme is put into effect by the newly elected representatives in the House of the People and in the several States assemblies. The alien government, that has luckily yielded place to our own, had not bestowed sufficient attention, over a long period of years, to the health of the Indian people and to the control of epidemic diseases that levied a heavy toll year after year. Our own government though extremely anxious to improve the lot of the common man and thereby the general level of public health in the country, has to face a severe financial stringency, with the result that only a small measure of improvement in this direction has so far been possible. And this is but a drop in the ocean. The outlook so far as the food problem (particularly in the South) is concerned, is bleak though signs are not wanting that the country is regaining some of its economic strength. If the New Centre and States Governments, that would shortly come into being would only realise that, on the contentment of the common people their health and well being, rests the prosperity of the country and frame their policies so as to ensure adequate food, clothing and shelter to all people alike, the outlook would be distinctly brighter and the people would be more cheerful and less despondent. The health of the nation would automatically improve. Dr. S. RADHAKRISHNAN, India's Ambassador in Russia said at Calcutta on New Year's day that the supreme test of the governments—Central as well as State—would be how far they had been able to overcome the "crisis of under-production, under-employment, over-population and worsening poverty of the people. An ill-fed people cannot ever become a great nation". Truer words were never said before. The state of chronic malnutrition in the people resulting from the various causes catalogued by the distinguished Professor, has to be tackled as the first and foremost problem by the new Governments, as malnutrition is responsible for the

great increase in the incidence of various diseases, (including tuberculosis) that we see all around us today.

It is our sincere hope therefore, that during the New Year, there will be greater and more vigorous attention paid to the improvement of the general health of the people and also greatly increased confidence and hearty co-operation from the people themselves in the efforts made by the Government to improve their lot and raise their standard of living.

The ANTISEPTIC has entered on its fortyninth year of useful life and will shortly be preparing to celebrate its Golden Jubilee in 1953 in a fitting manner. We are profoundly grateful to the numerous readers in India and in other countries for the generous help and cordial reception extended by them to the Journal during these forty eight long years and we offer them our hearty greetings and good wishes. To the many contributors who have cheerfully and willingly responded to our requests from time to time with valuable articles, our sincere thanks are due in no small measure. Our large clientele of advertisers, who have liberally supported us and earnestly cooperated with us in our sincere efforts to serve them have laid us under a deep debt of gratitude. To all of them once again, we offer our hearty good wishes for a *bright happy and prosperous New Year*. JAI HIND.

THE NEWER RESPONSIBILITIES OF THE MEDICAL PROFESSION

"THE ultimate goal of the medical science has now changed from mere cure of diseases to the preservation and promotion of positive health of the community. This involves a complete adjustment of man to his total environment—physical, mental and social," thus observed Dr. P. S. GUPTA in his presidential address to the 12th Maharashtra and Karnataka Provincial Conference held at Poona in November last. A large proportion of diseases, almost fifty percent, treated in our hospitals and dispensaries relates to affections caused by dirty conditions of living. Virulent skin diseases, acute troubles of the eye, ear, nose and throat caused by dirt and spread by insanitary and unhygienic conditions of living, as also bowel diseases caused by unwholesome and dirty food and polluted drinking water, are definitely on the increase. The absence of adequate sanitary facilities, the great inadequacy of safe protected water supplies in towns and villages and last but not least, the severe malnutrition which has followed in the wake of dearth of food and austere rationing, have all contributed to make living conditions infinitely worse. It is a common sight to see children playing in streets near dust-bins littered with refuse, and eating their food without having a wash; women cooking and serving food without cleaning their hands and

utensils properly; and men wearing their clothes unwashed for several days. Houses and their surroundings are not swept every day and tidied up as often as necessary. These and many other similar dirty habits necessarily cause positive harm to the health of the people.

Poverty of the masses is usually blamed for the high incidence of disease in our country. The dearth of food, the inadequacy and poor quality of the rationed rice and the enormous increase in the price of essential commodities are no doubt responsible for a great deal of human suffering at present. But at the same time, one cannot help feeling that these factors cannot be wholly incriminated in the high incidence of diseases due to dirt and neglect of personal hygiene and cleanliness by the people. Even the poorest man can avoid diseases due to dirt by attending to the cleanliness of his person, clothing and living places every day. By the observance of clean habits alone, can the standard of living be suitably raised. To improve public health and to raise the standard of living, it is necessary to promote clean habits of life by teaching people self-control and self-discipline. Doctors can play a very large and important part in this direction. "They should advise patients and their relatives to take preventive measures and cultivate clean habits. The mere administration of medicines to cure patients, should not be supposed to be the only duty of medical practitioners," says Dr. P. S. GUPTA in a recent communication to the *Journal of the Indian Medical Association*. He says that members of the Association should educate the people on public health by talks and by the display of health films and that the Association should form local branches for carrying on health propaganda and co-operate with local health officers and local bodies in improving public health. The final object of medical science is the attainment of positive health of the community. Dr. GUPTA in his presidential address at Poona, made a fervent appeal to members of the profession to the effect "they must spare some time out of their routine daily life for the uplift of the people's health."

Dr. B. C. Roy, the Chief Minister of West Bengal inaugurating the thirteenth Annual Conference of the Association of Surgeons in India, held at Calcutta on the 27th December last, reminded the members of the medical profession of the great responsibility that had fallen on their shoulders after the achievement of independence and appealed to them to play their vital part in raising the standard of living of the common man. "It was the duty of the medical profession" said Dr. Roy "not only to alleviate the sufferings of man, but also to bring a new ray of hope and life to them," by devoting some of their time every day towards the raising of their standard of living.

We heartily and very strongly commend these fervent appeals to our professional brethren and also wish to impress on them the

sacred duty cast upon them viz., to come forward willingly and give every possible help and co-operation to the health officers and to the local bodies in creating health consciousness in the people and in ameliorating the condition of the masses.

THE PROGRESS OF MEDICAL EDUCATION IN INDIA

A NEW MEDICAL COLLEGE AT TRIVANDRUM

WE recently had occasion to refer to the serious shortage of doctors, which stands in the way of implementing any scheme of medical relief in rural areas that has been embodied in the Government's five-year plan; we stated that many more medical colleges should be started and the output of medical graduates should be greatly increased and that the establishment of the medical college at Madurai and the development of the existing medical college at Guntur would not solve the problem to any really great extent. As we already pointed out in our last issue, public benefactions for establishing medical colleges deserve all the help and support from the Government and the Universities. It may be that medical institutions that are permitted to be started under such private and public benefactions, are not able to meet at once all the rigorous requirements laid down by the University Codes. But when once allowed to be started even with the minimum needs and given due recognition, these institutions will in time develop into full blown colleges. Our popular Prime Minister speaking at the inauguration of the new medical college at Trivandrum in November last, said "It is gratifying to see great buildings put up at centres for health education but my faith in great buildings is somewhat lessening".

This new medical college which was opened at Trivandrum on the 27th November 1951, would serve to remedy to a great extent the present shortage of doctors in the United State of Travancore and Cochin. The college started functioning in August last with a nucleus staff and sixty students were admitted to the first-year class of the M. B. and B. S. degree course. After two years, the States Government propose to increase the admission to 100 students every year, and by this time they hope to have the college properly organized and fully equipped. Hitherto, the two States comprised in the Union were unable to provide for the medical education of more than about a dozen selected students every year; and the students thus selected, had to prosecute their studies in any one of the medical colleges at Madras, Delhi or Calcutta. The Government of the newly integrated State of Travancore-Cochin has been very prompt in carrying out its scheme for the establishment of a medical college for their State and has acted more quickly than the Madras Government has been doing in dealing with its proposals to

establish medical colleges in Madurai and Guntur. Just three years ago, in 1948, before the amalgamation, a Committee appointed by the Travancore Government visited the more important medical centres in India and had consultations with several leading men in the medical profession. They then drafted a scheme for the establishment of a medical college for Travancore. Certain difficulties which arose as a result of the amalgamation of the two States, particularly in integrating their development schemes, were soon overcome and the Government of the United State made provision in their budget for the founding of this new medical college, which became a *fait accompli* in a couple of years. A new building was designed and erected on a fine and spacious site. Hostels for the students and quarters for the staff are nearing completion, in close proximity to the college. A training school and a hostel for nurses have already come into being.

A palatial building with all modern scientific medical, surgical and radiological equipments to house the General Hospital is under rapid construction within the college campus. Very near to the new medical college has been built a hospital for children. His Highness the Rajapramukh donated a sum of 4 lakhs of rupees for a children's wing. It was proposed to expand the Children's Hospital, making it a combined Women's and Children's Hospital. The Hon'ble RAJKUMARI AMRIT KAUR, Union Minister for Health inaugurated on the 8th January 1952, the Hospital for Women and Children, which has been named after Avittam Thirunal, the Rajapramukh of Travancore—Cochin. This hospital will serve also as a centre for special study and research regarding children's disease. The Union Minister was delighted to note the rapid progress made by this state in education and public health. "No other State in India", said she "could boast of such progress". She also congratulated the Travancore Maharajah on the munificent endowment he has created for the study of children's diseases, and hoped that that institution will be the foremost in its field in India.

The official note published on the occasion of the opening of the medical college on the 27th November 1951, stated:—

"The college is unique in being the first centre in India where all the component institutions necessary for medical education on modern lines, such as hospitals, nurses' schools and hostel, hostel for students, playgrounds, staff quarters etc., are all situated in the same area—an ideal and extensive area of over 100 acres".

The Prime Minister congratulated the Government on their achievement and exhorted them to maintain a high level in the standard of education, equipment, and staffing at this new model institution. The establishment of many more such colleges for the education and training of medical graduates, is a pressing problem which should receive unstinting and liberal support from all the States Governments.

Gleanings From Medical Press

MEDICINE AND THERAPEUTICS

Myasthenia gravis in new-born infant.—(*Texas State Jour. Med.*, 47, 1951, pp. 299-302).

Holt and Hansen review the history of the cases of myasthenia gravis in new-born infants; all were born to mothers who had myasthenia gravis. The authors have added one more case to the list and report on their successful treatment with neostigmine of an infant during the neonatal period. A full term female infant was delivered spontaneously on 19-11-49 to a Negro mother who had myasthenia gravis of 10 months' duration. The birth weight was 2500 gm. The length was 47 cm. The circumference of the head was 30.5 cm. and of the chest 30.2 cm. The colour was good; the Moro embrace reflex positive. A weak cry and a questionable "ironed out" expression of the face were the most significant findings. The mouth remained constantly open and relaxed and facial features remained unaltered even during painful stimulation. Even when stimulated to cry, no "lines of expression" were visible. The lower jaw drooped, and the mouth gaped constantly. As a therapeutic test at 4 p.m., 68 hours after birth, the infant was given 0.07 mg. of neostigmine methyl-sulphate intramuscularly. Within 10 minutes there was a dramatic response. The child began to cry lustily. When offered a nursing bottle she sucked vigorously and the feeding was retained.

After this gratifying experimental period, a regimen of regular feedings plus 2 mg. of neostigmine bromide administered orally every 3 hours was instituted. The drug in an aqueous solution was added to the milk-mixture. From the study of this infant as well as other similar patients, one may speculate that these new-born infants suffer symptoms because of the carry-over of some humoral factor from the mothers. The authors state:—(1) Infants born to mothers with myasthenia gravis, should be observed closely during

the entire neonatal period for symptoms of the disease.

(2) If such symptoms appear, immediate intramuscular administration of neostigmine is recommended as a therapeutic test and provided a satisfactory response is obtained treatment with the drug should be continued for at least three weeks.

In the discussion that followed, Dr. C. T. Stone said that neostigmine was the remedy of choice and tetraethylpyrophosphate, which is effective in the management of adults with myasthenia gravis, cannot be given in full therapeutic doses to infants without producing serious toxic reactions. Should the infant have prolonged myasthenic symptoms for as long as a few months after treatment with neostigmine (as in one of the reported cases) tetraethylpyrophosphate might prove worth while.

Diagnosis and treatment of pernicious anaemia.—(*Br. Med. Jour.*, 15-7-1950, pp. 157-159. *Being the scheme of Refresher Course for General Practitioners*).

Dr. R. B. Scott of the St. Bartholomew's Hospital and Physician to His Majesty's household, contributes a very instructive article on this subject, under the scheme of Refresher Courses for General Practitioners. Here is a brief resume of this valuable discourse:—

In pernicious anaemia the primary fault lies in a failure of gastric function. Pernicious anaemia arises when the glands of the gastric mucosa fail to secrete the intrinsic factor; its anatomical basis is an atrophy of the mucosal lining of the stomach.

A. DIAGNOSIS.—In establishing a diagnosis of pernicious anaemia, it is necessary to prove that (1) the anaemia is of the megaloblastic variety and (2) that it has originated from failure of gastric function. Megaloblastic anaemia is characterized by a reduction of RBC proportionately greater than the fall

the hæmoglobin level and thus by a colour index greater than 1. The blood film will show abnormally large megalocytes. This megalocytosis will be shown by an increase in the mean corpuscular volume, an easily estimated index, of which the normal value lies between 75 and 95 μ^3 . In pernicious anaemia the figure is always above 100 μ^3 and often in the range of 110–140 μ^3 .

Megaloblastic anaemia also occurs as a result of tropical sprue, idiopathic steatorrhoea and other variants of the sprue syndrome. It may be due to dietary deficiency and to various disorders of the alimentary tract, such as intestinal stricture and/or regional ileitis. It may occur in pregnancy or puerperium or may follow operations in the stomach and particularly total gastrectomy. Collateral evidence of impaired gastric function will be provided by the fractional test meal. The diagnosis of pernicious anaemia should never be entertained unless achlorhydria after injection of histamine is established. The diagnosis is made more probable by the presence of signs of subacute combined degeneration of the spinal cord. The diagnosis is beyond doubt by the demonstration of a megaloblastic bone-marrow or by the presence of megaloblasts in the circulating blood and by exclusion of other causes of anaemia of this type.

B. INITIAL TREATMENT.—Rest in bed until Hb level rises to 65% except in cases with disease of spinal cord. Certain foods favourable to blood regeneration should be given:—Liver and kidney and apricots, peaches, grapes, apples rank high; green vegetables, dairy products and farinaceous foods rank low. Blood transfusion is seldom now required in the patient with pernicious anaemia. Indications are anaemia severe enough to constitute an immediate danger to life; presence of infection interfering with response to specific treatment; and urgent necessity for raising Hb level before a surgical operation. Mental illness due to cerebral anoxia, extreme venous congestion, and generalized puffy oedema are clear indications for transfusion of blood.

C. SPECIFIC TREATMENT.—Consists of administration of anti-anaemic principle.

The effective preparations available for this purpose are:—(1) *Proteolysed liver for oral administration*:—1 gm. contains the product of about 5 gm. of original liver. A dose of one teaspoonful 2 to 3 times a day is usually adequate.

(2) *Liver extracts for parenteral use*: Crude and refined varieties are available. Each cc. of crude extract is derived from 2½ to 10 gms. of original liver. Each c.c. of refined extract is derived from 60 to 100 gms. of original liver. The old theory that crude extracts are better has no real foundation and the intramuscular injection of a refined liver extract of known potency is a completely effective method of treating pernicious anaemia.

(3) *Vitamin B₁₂*:—It has proved as effective as liver extract in treating pernicious anaemia and subacute combined degeneration of the spinal cord. It is possible that vitamin B₁₂ will replace liver extracts in the treatment of pernicious anaemia; it is cheaper and therapeutically as effective and never gives rise to allergic complications that may follow the prolonged use of liver extracts. This vitamin B₁₂ is given by parenteral injection. 20 micrograms weekly, is enough for the initial treatment of an average case; if signs of neural degeneration are present the dose may be raised to 40 micrograms weekly.

(4) *Desiccated Hog's stomach for oral use* is the most logical remedy for pernicious anaemia as it contains the intrinsic factor which the patient lacks. It is prescribed as a dry powder, has an unpalatable taste and the dose is 1 to 2 tablespoonfuls a day. It should be prescribed as an alternative to proteolysed liver when parenteral injection is impossible.

(5) *Folic acid* is effective in raising the blood levels in pernicious anaemia but has been found to have no effect on the nervous degeneration. In fact its administration has often been followed by explosive onset of nervous symptoms which progress rapidly even while the anaemia is improving. It must be regarded as a dangerous drug which has no place in treatment of pernicious anaemia.

D. MAINTENANCE TREATMENT:—The aim should be to keep the R.B.C. count

above 4½ million c. mm. the Hb. level above 90 per cent (Haldane) and the mean corpuscular volume below 100 μ^3 . In the majority of cases 3 to 4 cc. of a refined extract or 40 micrograms of vitamin B₁₂ once a month will maintain a normal blood picture.

E. ADJUVANT TREATMENT.—In cases where, even after successful control, some dyspepsia persists dilute hydrochloric acid (B. P.) in doses of 15 to 30 minims thrice a day in water or preferably orange juice is usually successful in relieving the symptoms. Iron is quite unnecessary, unless a complicating iron deficiency exists.

Carcinoma of the stomach is three times as common in patients with pernicious anaemia as in the general population. An x-ray examination every year of the stomach is therefore, a wise precaution.

Some applications of the newer antibiotics.—(Cruickshank, R., *Proc. Royal. Soc. Med.*, Oct. 1950).

The newer antibiotics, aureomycin, chloromycetin and terramycin score high marks when assessed on the basis of effectiveness, toxicity, ease and cost of administration. The range of their activity is much more extensive than that of penicillin or streptomycin. They are almost equally active against both gram positive and gram negative organisms.

Aureomycin seems to be the more effective drug against the gram positive cocci (staphylo, strepto and pneumo) while chloramphenicol is the drug of choice in enteric infections. They may all be used in trachoma, herpes zoster, mononucleosis, and amebiasis but are useless against the poxes and such common virus infections as the common cold, influenza, measles, mumps and rubella. They are all free from direct or indirect toxic effects; they are effective when given by mouth at 6 to 8 hourly intervals. The emergence of strains resistant to them is a rare occurrence. The disadvantages are that they are bacteriostatic rather than bactericidal and therefore, require the active co-operation of the host's tissues in eliminating the invading bacteria. Relapses in

typhoid, undulant fever and rickettsial infections treated early have been unduly common with all these three drugs and there is therefore, a fertile field for combined chemotherapy and immunotherapy.

Because of their bitter taste their administration to young children and some older people who cannot swallow the usual size of 250 mg. capsule has created a pharmaceutical problem. This difficulty may have to be overcome by the prescription of the drugs as enteric-coated granules.

Hormones and female genital cancer.—(Novak, E., *Am. Jour. Surgery*, July 1951, pp. 149-151).

Novak reviews the available experimental evidence relating to the development of endometrial cancer as a result of prolonged oestrogen therapy, particularly in the late menopausal stages and raises the following points for careful consideration in the treatment of menopausal troubles:—

The question arises as to the possible hazard of cancer from prolonged or excessive oestrogen therapy. When this is carried out continually for long periods, perhaps many years, as it unfortunately often is, in the management of menopausal women there is reason to believe that a definite hazard does exist; histological studies in some cases support this belief. There are other good reasons why continuous oestrogen therapy should never be used at the menopause or why, for that matter, any oestrogen should be given in the vast majority of women at the menopausal epoch. In a small proportion of women, however, the severity of vasomotor symptoms fully justifies resort to the interrupted employment of oestrogens and under such restrictions there would appear to be no reason for great concern.

On the other hand and on the basis of the author's observations, he believes that one should try to avoid oestrogen therapy or at all events hold it down to minimum proportions in women with a very strong family history of cancer, those who suffer with any so-called pre-cancerous lesion or again those who have

previously been treated for cancer surgically or radiologically. Even in such cases, severe menopausal symptoms may have to be countered by modest and interrupted doses of oestrogen. It would perhaps be safer to resort to testosterone which relieves the vasomotor symptoms satisfactorily, though probably with less striking effectiveness than oestrogen.

Physical methods of controlling hyperpyrexia in children.—(Ind. Jour. Paed. 18, 69, 1951)

Mojumdar and Bhattacharya of the Calcutta Chittaranjan Sishu Sadan record the results of controlled comparative study carried out by them, on 21 patients with hyperpyrexia (104 F to 107 F) using five different physical methods of bringing down the temperature quickly. The methods tried were (1) washing of the head; (2) ice bag on the head; (3) tepid sponging; (4) cold sponging; (5) rectal ice-water enema given continuously and allowed to drain into a bed-pan. These were tried as being the only convenient methods that can be used in private practice and in cases where hospitalization is not possible. The last method (continuous ice-enema) was able to lower the temperature down up to 3.6 F, (a quite comfortable finding) within 1/2 to 1 hour. Though eminent paediatricians like Sweet for example, have stated that enemas have little or no value in the treatment of pyrexia, the results obtain-

ed by these two authors appear to show that ice-water enemas have a definite value in hyperpyrexia of children.

Male sex-hormone for suppression of lactation.—(Virg. Med. Monthly, 77, 543-564, Oct. 1951).

Parker records his observations on 42 unselected cases in which testosterone was used either orally or by injection to inhibit or suppress lactation. 10 patients received the drug orally: It was 10 mg. methyl testosterone in tablets which were swallowed, or tablets containing 6 mg. methyl testosterone were placed under the tongue to be absorbed through the buccal mucosa. Administration was usually started on the first post-partum day. The tablets to be swallowed were given in doses of 30 mg. thrice daily from 3 to 5 days and those for buccal absorption were given in 18 mg. thrice a day for 4 days. 32 patients received testosterone injections in total dosages of 100 to 150 mg. The material used was 100 mg. testosterone in aqueous suspension per c.c. of body surface. The injections were given intramuscularly in divided doses of 50 mg. on successive days. Lactation was suppressed in all but 4 cases without undesirable effects. Engorgement of the breasts occurred in 3 cases; but no infection of the breasts occurred. The drug can be given effectively at any time during or before the onset of lactation.

SURGERY

Sudden cardiac arrest.—Editorial in Jour. Iowa State. Med. Soc., Sep., 1951.

In cardiac arrest often met with, on the operating table the striking failure of B.P. and pulse makes the diagnosis obvious to the anaesthetist. This circulatory failure is of two types (1) absolute arrest, and (2) ventricular fibrillation. In order to diagnose accurately and treat properly the cardiac arrest, direct access to the heart must be obtained at once—either transperitoneally or intrathoracically. Speed is of

paramount importance as an adequate circulation must be re-established within 3 to 4 minutes, if death or permanent cerebral damage is to be avoided. A practical plan to follow will be:—

(1) The anaesthetist maintains satisfactory respiration, using rhythmic compression of a rebreathing bag to provide 100 per cent oxygen to the patient.

(2) The surgeon must gain immediate access to the heart and maintain the circulation by proper cardiac massage. Rapid rib resection and direct massage is the most effective. If an abdominal

operation is in progress, the surgeon may occasionally maintain effective massage through the diaphragm, compressing the heart against the anterior thoracic cage. The rate of massage should be maintained at 80 beats per minute, simulating gradual systole and abrupt diastole.

(3) Electric shock applied in cases of ventricular fibrillation, may aid in restoring a normal rhythm. A sixty cycle alternating current of 1.15 amps. is passed through the heart for less than one second. Such a simple emergency set-up should be always ready at hand in every operating theatre.

(4) Drugs play a minor but still useful role in cardiac resuscitation. 3 to 5 c.c. of a 2 per cent procaine solution, injected intraventricularly is often useful in combating ventricular fibrillation or in preventing such fibrillation which may follow cardiac massage as a complication. Epinephrine is useful only in strengthening the cardiac contraction once a spontaneous rhythm has been resumed. Because epinephrine has in itself, a tendency to induce fibrillation, it should be used always in conjunction with procaine and in dosage never to exceed 0.5 c.c. of 1:1000 solution.

This or a similar plan of therapy should constitute a portion of every surgeon's storehouse of knowledge, in the treatment of cardiac arrest.

Recovery from prolonged cardiac arrest has been reported also by Ivory and Rinzler of New Jersey. (Am. Jour. Surgery, Aug. 1951, pp. 256-259). They present a case, in which the heart was inactive for 16 minutes. After manual massage by the transthoracic (anterior) approach it resumed its activity. The patient made a complete recovery. Auxiliary measures, adrenal cortical extract, mechanical resuscitation, and glutamic acid were also used.

Coarctation of the aorta.—(U.S.A. Armed Forces Med. Jour., Sep. 1951).

The correction of the adult type of coarctation of the aorta by surgical means would permit a person to perform full military duties and alter the previously unfavourable prognosis for normal longevity. Persons suffering from

coarctation of the aorta are easily detected by noting the presence of an elevated B. P. in the upper extremities and the absence or weakness of arterial pulsations with a decrease or absence of B. P. in the lower extremities. Arterial angiography is an adjunct in the diagnosis of this condition. Forsee et al of the Army Hospital at Denver, treated three patients and restored them to full physical fitness by surgical treatment. The coarcted area was resected and the two ends of the aorta sutured. The lumen of the coarctated area was constricted to a diameter of only 1.2 m.m. The new opening resulting from the anastomosis of the 2 ends was 1 c.m. in diameter. The postoperative course was uneventful. Definite increase in warmth occurred in the lower extremities. Femoral pulsations were easily palpable immediately after the operation and the postoperative B. P. in the lower extremities increased. Popliteal and dorsalis pedis arterial pulsations were easily felt. The patients returned to full military duty and participated actively in sports. The surgical correction of this defect thus altered an unfavourable prognosis as to longevity to normal.

Congenital atresia of the oesophagus.—(Ulster Med. Jour., May '51).

The condition may be suspected within a very short time after delivery, even before any feeds have been given, in an infant who shows cyanosis, with copious frothy saliva, which continues or increases.

Operation should not be delayed when diagnosis has been established. Pre-operatively, continuous oxygen should be given with continuous or repeated pharyngeal suction. Penicillin and streptomycin might well be combined and started at once. A blood transfusion is started at the time of the operation. The actual operative technique is a matter of choice for the surgeon concerned—Retropleural or transpleural approach. The oesophagus is exposed, and tracheal fistula ligatured. Either direct end-to-end anastomosis or a multiple stage operation may be done. In the latter case

the upper pouch is brought to the exterior in the neck, removing the danger of aspiration and a gastrostomy performed, an artificial anterior oesophagus being constructed at a later date. Ladd and Swenson perform gastrostomy 24 hours after operation as a routine measure; through this the infant is fed for 10 days after which ordinary feeds are gradually started. Boley and Donnison do not perform gastrostomy; they follow up the initial blood transfusion of 200 c.c. with infusion of saline and start oral feeds of sterile water for 24 hours after operation. Ten out of their 17 cases survived and did well.

Disturbances in taste following tonsillectomy—(Zutt, F., *Laryng. Rhinol.*, 29: 544-550, 1951—Eng. Abst.)

Dahmen reports two cases in which the sense of taste was impaired after tonsillectomy. One of them a girl of 20 found that sweet foods had a disgusting taste (after the operation) particularly when they passed the base of the tongue. She had increased salivation and also radiating pains from the root of the tongue to the ears while she ate or talked. The pain persisted for half an hour. These pains and salivation stopped after 3 months. Five months after the tonsillectomy normal taste was restored. The second patient complained of having a sweet taste constantly in her mouth after the operation, particularly noticeable on the left side of her tongue. She required excessive amounts of salt in seasoning her food. She also had the sensation of a foreign body in her throat all the time. Ageusia for sour and salty tastes was manifest in this case in the left posterior third of the tongue and persisted for 18 months, after which the normal sense of taste was gradually restored. Irritation of or injury to branches of the glossopharyngeal and related nerves during tonsillectomy is regarded as the probable cause of taste impairment in these 2 cases.

Penicillin and sulphonamides in the treatment of suppuration—(Ellis, M., *The Lancet*, 7-4-1951, pp. 774-775).

Ellis records the highly satisfactory results he had in the Casualty Department of the General Hospital at Leeds, in treating abscesses, and suturing of wounds by injecting penicillin half an hour before opening the abscess and maintaining a penicillin level in the blood of about 1 unit per c.c. Half an hour before the operation, the patients were given 50,000 units of aqueous penicillin and 600,000 units of procaine penicillin. The abscess was incised half an hour later, under gas. All signs of inflammation disappeared rapidly the exudate of pus ceased in a very short time, and the wound healed in half the time that is normally taken when the abscess is opened without a penicillin cover. In this hospital they are now following this as a routine procedure—injecting penicillin first, incising the abscess 30 minutes later, evacuating the pus, and doing primary suture. The wound heals soundly and firmly in 4 to 7 days as against the average time of healing of 10-14 days in pre-penicillin-cover days.

Prevesical prostatectomy—(*Amer. Jour. Surg.*, 82: 1, pp. 151-155, July 1951).

Crowley and Fernicola, describe a new method of approach in extravesical enucleation-prostatectomy based on their successful results, on 33 cases and also detail the advantages of this approach.

The operation specifies a strictly midline, gentle reflection of the pre-vesical fascia on the antero-inferior surface of the collapsed bladder from above downward to the region of the prostatic-vesical junction, where a very limited exposure of the prostatic capsule is made. The retro-pubic or paraprostatic recesses are not disturbed. Blood vessels are evaded or coagulated. The adenoma is gently enucleated and the urethra is incised at the apex of the adenoma with the Satinsky scissor. A high slightly elliptical transverse incision is then made in the prostatic capsule. The Cushing suture is used in a water tight and haemostatic closure of the incised prostatic capsule.

This technique has the following advantages over others:—

(1) Bleeding is minimized and haemorrhage is prevented.

(2) Management of bleeding vessels is easy and prompt.

(3) The element of contact with the symphysis pubis and paraprostatic recesses is excluded as a cause in the production of osteitis pubis.

(4) The prostatic capsule tears cephalad if tearing occurs and the latter prostatic venous plexuses are evaded.

(5) The Satinsky scissor provides facility in the separation of the urethra at the apex of the adenoma, prevents tearing of the capsule and assures continence.

(6) The Cushing suture secures haemostasis and a water tight closure of the incised prostatic capsule and avoidance of contact with the symphysis pubis.

(7) Early ambulation, short duration of catheter drainage and hospitalization are provided.

EYE, EAR, NOSE AND THROAT

Risk of poliomyelitis after tonsillectomy—(*Ann. Otol. Rhin. Laryng.*, Sept. '51, pp. 602-614).

Of 2709 cases of poliomyelitis which occurred in Minnesota in 1946, twenty one appeared within one month following tonsillectomy, eighteen more (18) appeared within 2 to 3 months following tonsillectomy. 12 of the first group and four of the second group had bulbar enlargement. The occurrence of bulbar cases after tonsillectomy was concentrated within the usual range of incubation periods. A statistical comparison of poliomyelitis incidence rates and of bulbar cases among children of the same age, showed that the risk of developing poliomyelitis was at least *thrice* as great among those having undergone tonsillectomy as among those not having had this operation and the risk of bulbar infection was *eleven times* as great. These data, though comparatively small, are statistically significant and suggest that tonsillectomy may increase the risk of infection with recognizable poliomyelitis and may be a factor in determining a bulbar response, if infection is developing.

Vitamin A in prevention and treatment of Chalazion—(*Eye, Ear, Nose and Throat Monthly*, Sep. 1951, pp. 488-490).

Hickey of Boston in Massachusetts, records his experience extending over several years of using 50,000 to 100,000 units of vitamin A in the treatment of

early chalazion and as a preventive following the surgical removal of large long standing chronically involved Meibomian glands. Doses of 50 to 100,000 units were continued for several weeks, and no complications occurred. Vitamin A alone was used in the treatment of early chalazion in all age groups from 17 months to 80 years of age. No untoward effects were met with, following the use of massive doses of vitamin A in this and other eye-lid pathology.

Although the textbooks and published literature contain no direct references to the use of Vitamin A, in the treatment of chalazion the administration of this vitamin in affections of the Meibomian glands has proved successful and warrants extensive trial. Hickey is of the opinion that (1) the pathology of chalazion and vitamin A deficiency appears to be quite similar (2) patients with physical conditions which cause poor absorption of vitamin A have chalazion (3) when complete atrophy of the Meibomian glands occurs, vitamin A is of no value and surgery is the only logical form of treatment in such conditions (4) vitamin A should be used as a preventive to involvement of other Meibomian glands (of which there are about 20 to 30 in the lower and 30 to 40 in the upper eye lids) following the removal of the chalazions.

Results of this treatment over a 5 year period in early chalazion and as a prophylaxis have been excellent.

Goniopuncture—A new filtering operation for glaucoma. (Schele, H. G., *Archives Ophthalmol.* 44, 761, Dec. 1950). As a result of prolonged observations on cases in which goniotomy was performed, Schele has developed a filtering operation for glaucoma. The operation consists in making a fistula through the trabecular region of the corneo-scleral wall by an incision from inside the anterior chamber resulting in subconjunctival drainage of aqueous humor. This operation is full of promise in the surgical treatment of congenital and juvenile glaucoma.

Dilatation of the pupil, (*J.A.M.A.*, 13-12-1950, p. 1536). Four per cent. cocaine hydrochloride solution instilled into the eye three times at intervals of five minutes is the simplest procedure for securing maximal dilatation for fundus examination and prompt subsequent narrowing of the pupil and restoration of accommodation. Dilatation of the pupil does of course,

precipitate an increase of tension in an eye predisposed to glaucoma and the tension should be determined with a tonometer beforehand.

Eye lesions after B.C.G. vaccination.—(Fraudsen, E., *Nord. Med.* 44: 1307-1309, 1950, Eng. Abst.)

Unilateral eye lesions were found in 3 youths within 2, 3 and 18 months of B.C.G. vaccination respectively. All had previously been Mantoux negative and were now Mantoux positive; in none of them had there been a general reaction to vaccination. The lesions were typical of tuberculous infection of the eye. A subcutaneous injection of 2 mg. tuberculin given to one of the patients after the condition had been quiescent for a month produced fresh precipitates on the posterior surface of the cornea and a rise in temperature.

Thorough clinical and laboratory investigations failed to reveal any evidence of local or general disease which might have accounted for the lesions.

PÆDIATRICS

Acute military tuberculosis in a 7 weeks-old baby treated successfully by streptomycin and P.A.S.—(*Amer. Jour. Dis. Child.* 82, Aug. 1951, author's summary from *Rev. Chil. Paed.*, 21, 1950.)

Correa and Alliende report an extremely rare case of cured military tuberculosis in a 7 weeks-old infant. The diagnosis was based on a positive intracutaneous tuberculin reaction (to Mantoux test 1:100 dilution) recovery of tubercle bacilli on stained smear, and by culture (gastric lavage); a typical X-ray picture of military tuberculosis and clinical symptomatology with a temperature of 102.2°F, cyanosis, dyspnoea marked enlargement of the liver and spleen, pyuria and suppurative otitis media complicated by facial paralysis.

The treatment included administration of 500 mg. streptomycin daily initially and 400 mg. thereafter, and P.A.S. 2 gm. daily for 26 weeks. Plenty of vitamin's A, C, D and Brewer's yeast were also administered. There was an

early beneficial effect on subjective symptoms. The X-ray picture at this stage had however not altered, but the lesions in the chest began to improve 6 months later and then continued to improve until complete recovery (including X-ray picture) at the age of 2 years and 3 months.

Carrot soup in treatment of infantile diarrhoea.—(*Jour. Paediatrics*, 37: June 1951).

Selander prepares carrot soup in the following manner:—500 gm. fresh carrots (15 palms) are washed and well scraped. They are then finely chopped and cooked with 150 gm. (about 5 ounces) of water in a pressure cooker for 15 minutes. The entire pulp is then passed through a fine strainer and diluted with hot water to make up 36 ounces (1 litre). Add 3 gm. (45 grains) table salt. The soup is made fresh daily. It will be thick and should be administered by spoon. It may be given to all infants, including premature

infants. The author claims it is superior to all other types of oral treatment in infantile diarrhoea. Immediately after hospitalization this soup is given in as large amounts as possible. After about only 12 hours' treatment there is a marked change in the condition of the children.

In infants with toxæmia the improvement is dramatic. Vomiting ceases at once, acidosis and dehydration promptly disappear; appetite returns, and milk mixtures are tolerated. A marked increase in weight is generally seen in cases of dehydration. Faeces change promptly; after 12 to 24 hours carrots appear at first combined with a fair amount of mucus. 24 hours later they consist of dry, yellowish red voluminous masses of carrot; children take the soup readily. This soup is effective in acute enteritis of children and adults also.

B.C.G. vaccination—experience of 700 vaccinated children.—(*Am. Jour. Dis. Child.* 82: 2, p. 205, Aug. 1951, Abstract from *Med. Klin.*, Sept. 1950.)

B.C.G. vaccination proved harmless except for eruption of a few minor transitory lesions. This is in agreement with the observations of others. The author, Breu, agrees with those who recommend, in order to ensure the prevention of tuberculous infection, an increase in the dose of tuberculin from 0.33 mg. to 1.0 mg. as recommended by the Danish Red Cross.

Vaccinated children should be protected from all possible sources of infection from six weeks before to six weeks after the vaccination. The vaccination should be limited to certain school groups. On an X-ray examination of 500 B.C.G. vaccinated children, so far none were found to have progressive endothoracic tuberculosis.

[Note by abstractor:—Is the precaution outlined above (printed in italics) being observed or at least kept in mind in India? Are parents of the children vaccinated with B.C.G. in schools informed of the need for this necessary precaution? T.N.S.R.]

Penicillin treatment of congenital syphilis.—(Abst. from *Med. Klin.*, Sept. 1950, in *Am. Jour. Dis. Child.*, 82: 2, p. 205, Aug. 1951.)

Twenty three children with syphilis were treated with penicillin for 7½ days. 12 of these 23 were infants. The other eleven were older than one year. For children under the age of 6 months the penicillin was given by mouth; for children over 6 months intramuscular injections were given. The only side reaction was elevation of temperature to 104°F. at the start of the treatment. Syphilitic manifestations on the skin and mucus membranes healed very quickly; bone lesions disappeared in 2 to 4 months. The blood serum became negative only several months after the treatment.

Orchitis in infant due to E. coli, cured by streptomycin.—(*Paediatrics*, 59, May, 1951.)

An infant of 12 months had poliomyelitis with residual paralysis of the right arm and leg 4 months previously; this was followed by an attack of diarrhoea and then by intermittent spells of fever, culminating in swelling and tenderness in scrotum. Sulphonamide and penicillin therapy proved unavailing and streptomycin resulted in complete relief of the condition in 7 days. The diagnosis of escheria coli infection was made by blood culture.

Treatment of mental deficiency with Pyridoxine and glutamic acid—(*Rev. Clin. Paediatric*, 48: 429-448, July 1951).

Levi and Falorni studied the effect of administering glutamic acid and pyridoxine on the intellectual performance in 10 cases of mental defect in children under 12 years of age; with intelligence quotients well below the minimum normal; 4 to 5 gm. of glutamic acid and 16 to 20 mg. pyridoxine were administered daily for six months. Intellectual improvement occurred in some and the motor performance was on the whole improved in nearly all cases.

OBSTETRICS AND GYNÆCOLOGY

Tracheotomy in eclampsia.—(*Obst. Gyn.* issue of *Bull. Tulane Med. Fac.*, 10, 3, May 1951, pp. 93-97).

Collins and Nix of the Louisiana School of Medicine, of the Tulane University, New Orleans, review the literature on the therapeutic value of tracheotomy in a variety of medical and surgical conditions, and relate the very satisfactory results they obtained with tracheotomy in 5 cases of eclampsia. The procedure has been used in the past with success in poliomyelitis (*J. A. M. A.*, 3-9-1949) in tetanus (*Surgery*, Jan. 1950) and coma in a variety of medical conditions (*J. A. M. A.*, 8-4-1950). It has also been used for several years past in the postoperative care of patients with brain tumours (*Surg.*, Nov. 1950), or cerebral abscesses (*Am. J. Surg.*, April 1950). Echols in a recent report of the use of tracheotomy in the management of severe head injuries feels that the procedure greatly aids in reducing the complications of hypoxia and or anoxia and increasing the survival rate.

In the eclamptic patient conditions similar to the above may be present *plus* the added factors of respiratory depression due to narcosis produced by the large amounts of barbiturates and opiates used to prevent or control convulsive seizures. Pre-existing and concomitant heart disease may further increase the probability of cardiac decompensation.

Eclamptic patients frequently show marked respiratory distress and hypoxia, which are usually relieved by the use of metal or rubber air-ways and repeated aspirations of the pharynx, larynx and trachea and the use of the oxygen mask or nasal catheter. Occasionally these methods of providing an air-way for oxygen have failed in deeply comatose eclamptic patients. It is in these cases that Collins and Nix advocate tracheotomy.

Tracheotomy allows instant and repeated tracheal aspirations as well as administration of oxygen. The pool of secretions in the hypopharynx is by-passed and the common complication of aspiration-pneumonia is greatly minimized. They give details

of 5 cases in which tracheotomy was performed with marked benefit. The fatal cases died from cerebral vascular accidents. As tracheotomy had been found useful in neurosurgery for severe intracranial injuries the authors felt that it would be of value in the cerebrovascular accidents incidental to toxæmia of pregnancy.

Retained placenta—Delivery by the hydraulic method.—(*Amer. Jour. Gynecol.*, Jan. 1951).

Bradley records his experience in 13 cases of retained placenta in which he used the hydraulic method for expulsion of the retained placenta. This method consists of injection of 500 to 1000 c.c. of hot normal saline solution into the umbilical cord through the umbilical vein. The injection of the hot saline causes the placenta to swell to twice the normal size and become firmer and heavier. This increase in size completes its separation from the uterine wall and the increased size and weight stimulate uterine contractions. The heat of the injected saline solution further stimulates the uterus to expel the placenta.

The equipment needed is a large gauge needle with a blunt end a large syringe, several hæmostatic forceps and a litre of hot sterile normal saline solution.

The needle is inserted into the umbilical vein and then clamped with one or two hæmostats to maintain it in place and to prevent escape of the fluid from the cord around the needle. If, at the end of 15 to 20 minutes the placenta has not been spontaneously expelled or by simple pressure on the fundus, manual removal should be effected without further delay. The injection should not be repeated when the saline flows out of the vulva as fast as it is injected. This is likely to occur in cases when the placenta has previously been ruptured by attempts to express it by Crede's method. The author believes this method to be very simple and safe and advises it in every case of retained placenta without bleeding, but objects to it when profuse bleeding exists.

Vaginal hæmorrhage due to Potassium permanganate.—(*Am. Jour. Surg.*, Aug. 1951, 227-229).

Lubin and Waltman of the Department of Obstetrics and Gynecology of the Cumberland Hospital, Brooklyn (N.Y.), review the literature relating to vaginal bleeding resulting from the introduction of KMnO₄ tablets into the vagina in an attempt to produce abortion and present ten cases from their own experience, of vaginal bleeding in which the causative agent was potassium permanganate, either in tablet, crystal, or as douching fluid. Bleeding was so severe in 5 of these ten cases, that the patients were in shock on admission and required transfusions of whole blood from 800 to 1500 c.c. The bleeding was controlled readily with firm vaginal packs with medicated gauze in the majority of cases. Only 2 required suturing of a free vessel and only one case aborted, as she had used quinine and perhaps

other agents as well. In this latter case the bleeding was minimal. The authors state that the introduction of KMnO₄ for producing abortion is on the increase in the district since 1946.

All patients with vaginal bleeding should be examined with a speculum and the vaginal walls and cervix completely visualized; when bleeding is painless, profuse and bright red in colour and associated with a closed external os, vaginal ulcerations as a source of the bleeding should be suspected. The ulcerations may be anywhere in the vagina or cervix and the more recent ulcers are surrounded usually by a black eschar.

Vaginal packing using either oxyeol or vaseline gauze, against the lesions and supported by a firm vaginal compressive packing stops the hæmorrhage. When a free spurting vessel is discovered direct suture ligature is best employed. Transfusions of whole blood are essential.

OBITUARY

THE LATE SHRI R. KRISHNAMACHARIAR

We regret to record the death of Sri R. Krishnamachariar. For over 20 years he had been connected with the ANTISEPTIC and HEALTH as the Assistant Editor and had done yeoman service to our journals. During his early years he had training under the late Dr. Annie Besant when she was editing the 'New India' and later joined their Editorial Staff and worked under Mr. B. P. Wadia. Later on, in the year 1918 he joined 'Swadesamithran' as its Sub-Editor and rose, by dint of meritorious service, to the position of Assistant Editor. He was the trusted lieutenant of the late Sri A. Rangaswamy Iyengar whose services in the field of journalism is well-known. After leaving 'Swadesamithran' in 1949 he joined 'Bharatha Devi' as its Editor and worked there in that capacity for over 4 years. Only in August 1951 he joined 'Tamil Nadu', Madura (founded by Sri Karumuthu Thiagarajan Chettiar), as its Editor.



A man with a very sound knowledge of men and matters, a facile pen and an understanding of the needs of our country, imbued with the spirit of nationalism, the late R. Krishnamachariar was a tower of strength to the 'ANTISEPTIC' for many years. His death is an irreparable loss to us. He leaves behind 7 sons, 3 daughters and a host of friends to bemoan his loss.

May his soul rest in peace!

NEWS AND NOTES

Professor Dr. Arthur Stoll, Swiss Organic Chemist, invited by the Government of India and by the Indian Science Congress Association to the 39th Session of the Indian Science Congress, Calcutta, January 1952.

Born in Switzerland on the 8th Jan. 1887. Diploma of Chemical Engineering of the Federal School of Technology, Zurich, in 1910, and Doctor of Technical Sciences in 1911. Called by the famous chemist Willstaetter to the newly created Kaiser Wilhelm Institute in Berlin, and then in 1916 to the University of Munich. Title of Royal Bavarian Professor in 1917.

Fundamental work on chlorophyll, first together with Willstaetter and later independently. Development of a method for the isolation of delicate plant substances, which has found wide industrial application. Since 1917 up to date extensive research on the alkaloids of ergot of rye: discovery, isolation and structural elucidation of ergotamine, ergocristine, ergokryptine, ergocornine and ergometrine (the last isolated simultaneously in three other laboratories); semi-synthesis of several ergot alkaloids. In Summer 1951 complete conclusive elucidation of the structure of all ergot alkaloids (paper to be presented at the Indian Science Congress). Extensive research in the field of cardiac glycosides; discovery of the "genuine" glycosides present in *Digitalis lanata*, *Digitalis purpurea*, *Strophanthus kombe*, *Squill*, etc. Isolation and elucidation of the chief active principles of *sonna* leaves. Isolation and synthesis of *alliin*, the chief principle of garlic.

Has received honorary doctorates (medicine, pharmacy, technical sciences) of the Universities of Basle, Berne, Geneva, Paris, Warsaw, Guatemala, Munich, Florence, Wurzburg. Member and honorary member of numerous International Scientific Societies, President of the Chemical Council of Switzerland. Has received the Pasteur Medal of the French Society of Biological Chemistry, and other important awards. In 1950 appointed extraordinary Professor of the University of Mexico.

In 1917 Professor Stoll founded the Pharmaceutical Research Laboratories of Sandoz Ltd., and is now President of the Board of Directors of that Swiss chemical enterprise.

Dr. P. R. Trivedi, Organising Secretary, 28th All India Medical Conference, writes:—

The Reception Committee of the 28th All India Medical Conference cordially invites all qualified medical men to attend the Conference at Ahmedabad on 17th, 18th, and 19th Feb. '52. The programme and other arrangements are as under:—

Programme.—1 Working Committee meeting of I.M.A. 13th and 14th Feb. '52. 2. Central Council meeting of I.M.A. 15th and

16th Feb. '52. 3. All India Conference 17th 18th and 19th Feb. '52.

Reception arrangements and Railway connection:—There will be a reception camp at the Ahmedabad station and volunteers will remain present both at metre gauge and broad gauge platforms for all trains. For members from Bombay and further South, Janata Express and Gujarat Mail leaving Bombay at 19.30 and 20.20 hours are convenient trains. For members from Bengal, U.P., Bihar, Punjab etc. Delhi Mail, metre gauge is very convenient leaving Delhi at 21.30 hours. For Central India and C.P. Tapti Valley Railway leaving Bhusaval at about 23.0 hours is convenient. This train connects Saurashtra Express at Surat at about 13.30 P.M. Timely intimation be sent for your reservations by these trains. Railway authorities have granted concessions for all classes on production of concession certificate from the Organising Secretary of the Conference.

Boarding and Lodging:—There will be a general camp in the premises of Sheth. C.N. Vidyalaya, Ellis Bridge, Ahmedabad where all delegates and visitors will be accommodated with separate arrangements for ladies. There will be a camp kitchen in the same compound where all catering arrangements will be made on usual tickets. There are no good hotels in the city, hence all guests will be accommodated in the camp. Please therefore supply following information to the Reception Committee immediately:—

1. Train time and date of your arrival.
 - (2) Train time and date of your departure.
 - (3) Whether you are Veg. or non veg.
 - (4) Whether you will stay in camp.
 - (5) By which train and class you wish to travel back.
- For any other information I am always at your service. Please get your concession certificate immediately. Thanks.

Hon. Secretary, Association of Physicians of India, Back Bay View, New Queen's Road, Bombay, writes:—

The Annual Conference of the Association of Physicians of India will be held at Hyderabad (Dn) on the 2nd, 3rd and 4th March 1952 along with the Annual Meeting of the Paediatricians and the Cardiologists.

Symposia on Infantile Cirrhosis of Liver, Rickets, Tuberculous Meningitis, Dysenteries in India; Congenital Heart Diseases have been arranged at these joint meetings. There will be, besides, other scientific communications.

For taking part in the deliberations of this Conference and for hotel accommodation at Hyderabad, I would like you to write to Dr. U. R. Parganekar (Opp. Sultan Basara Hospital, Hyderabad-Dn) who will arrange for your stay and transport. Daily charges will vary from Rs. 20 to Rs. 25. Provisional programme can be had from the secretary.

Erratum

Please read "patients" for "parents" in line 6 of the gleaming under 'Surgery' at p. 1029 of the December 1951 issue of this journal.

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With Vitamins
and Hormones

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With Vitamins

A palatable
Liver tonic
Specially for
Infants

OCIMEL

Syrup

The only Cough
Syrup with
honey base



ADCO'S COMPOUND

A PRODUCT OF ADCCO LTD., CALCUTTA-27

COMPOSITION:

for ADCCO'S Compound
with Vitamins
Vitamin A 10,000 I.U.
Vitamin B 2,000 ..
Vitamin B₁ 1,332 ..
Vitamin C 1,000 ..
Folic Acid 2 mg.

In a vehicle com-
posed of enzymoti-
cally digested pro-
ducts of codliver
oil, liver and spleen
20 p.c. Unferment-
ed malt extract 10
p.c. Glucose 5 p.c.
Hypophosphites of
Sodium and Potas-
sium solution (5
p.c.) 25 p.c. Extra-
cts from wild cherry
Getian Vasic,
Glycerrhiza, Eucal-
yptus 10% Papain
1 p.c. Aromatics &
Carminatives to
make 100.

ELASMIN PEARLS

Freely prescribed by leading physicians, this Shark Liver Oil product is recognized invaluable both as a prophylactic and curative against disorders resulting from deficiency of vitamin 'A'. Absolute freedom from the objectionable taste and odour characteristic of Shark Liver Oil is a special feature of this product. Each pearl contains 3,000/- I. Us. of vitamin 'A' in its natural ester form and 300 I.Us. of vitamin 'D'

INDICATIONS

General Debility, Pregnancy and Lactation. Rickets. Eye diseases. Diseases of the respiratory passage, such as coughs, cold, asthma and tuberculosis.

Sold in Bottles Containing 50 and 1000 Pearls

Elasmin is also available in liquid form in 1 oz. "ELASMIN LIQUID" bottles.

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"OPIL"

A palatable liquid preparation of iron available for massive dosage together with liver extract, vitamins B & C and minerals.

Composition

Each fl. oz. (28 c.c.) contains:

Vitamin B ₁	2.5 mg
Niacinamide	15 mg
Calcium hypophosphite	1 gr
Sodium glycerophosphate	1 gr
Iron ammonium citrate	60 gr
Vitamin C	25 mg
Liver extract equivalent to	14 gm. of fresh liver
Sodium chloride	0.2 gr
Manganese chloride	0.15 mg
Cobalt acetate	5 mg
Base	q.s.

Presented in bottles of 100 cc. & 16 oz.

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ORIENTAL PHARMACEUTICAL INDUSTRIES LTD.
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CALCINATE

It is an aqueous solution of double salt of Calcium Gluconate and Calcium d-saccharate for parenteral use. The special advantages of "CALCINATE" over ordinary Calcium Gluconate preparations are:-

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100 mg. per c.c. of metallic antimony in stable solution for intramuscular use in Kala-azar and also in Filariasis.

Try our recently introduced **Quinine Bihydrochloride**, **Calcium Gluconate** and **Glucose** in solution in ampoules of different strength and doses.

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 30.0 25.8 47.0 19.0
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 2 cc. 2.0; 5 cc. 3.0; 10 cc. 4.0 each
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Each 2 c. c. contains:

Vitamin B₁ 250 mgms.
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Issued in box of 6 amps. x 2 c.c.

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Each Tablet of 5 grs. contains:

Vitamin B₁ 3 mgms.
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Issued in -25, 100, 500, and
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Contents of a 4 oz. bottle:

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For the common cold
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Cosome

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decongests the inflamed bronchial mucous membranes, liquefies the thickened sputum and makes expectoration more easy and painless. It relieves troublesome cough irritation.

Cosome is excellently tolerated
Cosome has a pleasant taste
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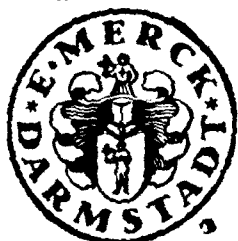
Packing:

Bottles containing approx. 170 gm.



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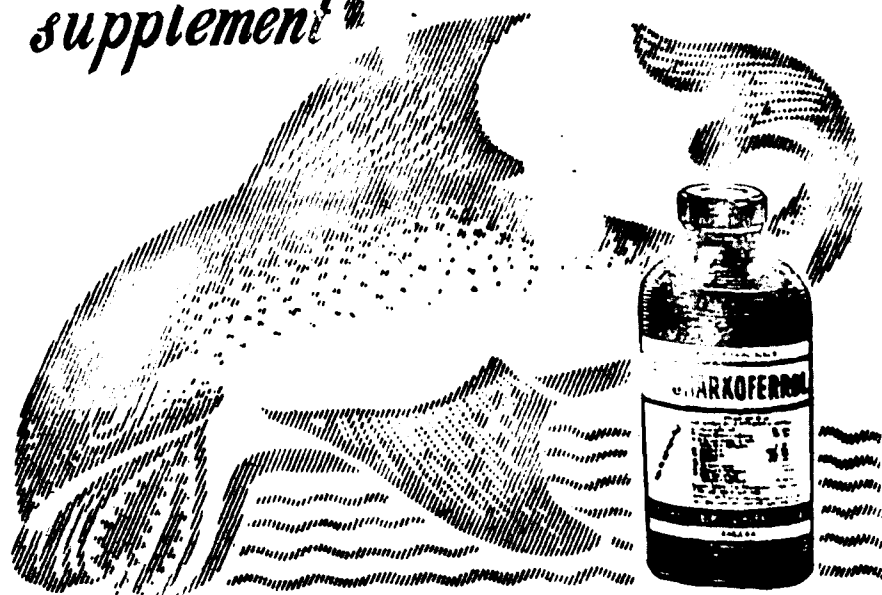
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SHARKOFERROL is a tonic and reconstructive, containing VITAMINS & MINERALS together. It is highly useful in conditions of Debility, Convalescence, Malnutrition, Dietary deficiencies and Wasting diseases



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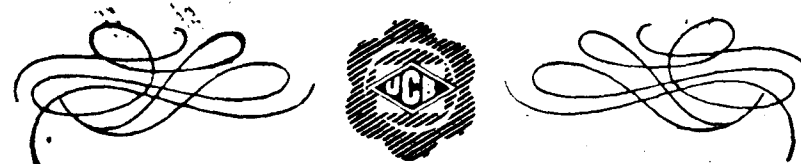
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Each ounce of SHARKOFERROL represents:-
 Vitamin A (from 40 mins. of Shark Liver Oil approx.) 20,000 I. U.
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 Vitamin B₂ 30 mgms.
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 Palatable Base enriched with Malt Extract Q. S.
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AC. 236



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(Sodium Paraamino Salicylate)

The introduction of AMINOPAR manufactured by the world renowned Union Chimique Belge ensures the supply of a product which is guaranteed to be of the finest possible quality at the minimum rate.

GRANULES

66% P.A.S. Chocolate brown. In tins of 100 gms.

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0.5 gm. Chocolate brown. Bots. of 1000 and 100 tablets.

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(Thiosemicarbazone)

Limited supplies in the following packing are available:

Bottles of 1000 tablets.
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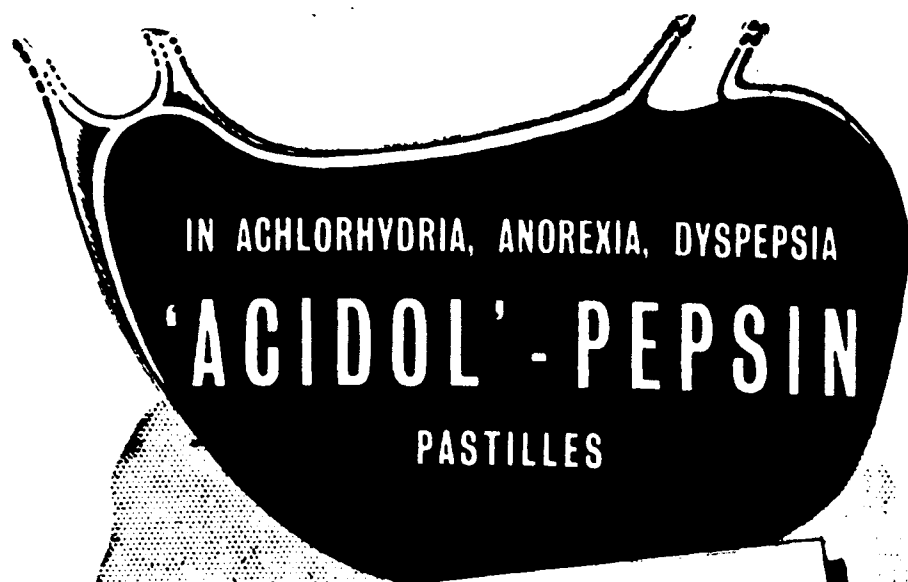
Is a recently developed synthetic product known chemically as Paracetaminobenzaldehyde Thiosemicarbazone. It shows a powerful action against Koch's bacillus both in vivo and in vitro, and clinical results obtained with it are most promising. TIOCARONE can be used in conjunction with Dihydrostreptomycin or P.A.S., and it is reported that this association improves the activity of each drug separately.

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Pleasant and practical in use
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 Slow splitting-off of hydrochloric acid
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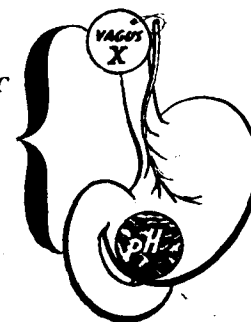
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PENICILLIN LOZENGES A & H each contain 500 units of penicillin (calcium salt); tubes of 20 lozenges.

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Combiotic

Penicillin and Dihydrostreptomycin

Each vial provides, for intramuscular administration, the complementary actions of:—

crystalline procaine penicillin—	G	300,000 units
buffered crystalline sodium penicillin—G		100,000 units
dihydrostreptomycin (as the sulfate)		1 Gm.

for one 3 c.c. aqueous injection, easily prepared by the addition of sterile aqueous diluent.

Effective against pathogens of the gram-negative and grampositive groups.

Recommended for selected cases of bacterial endocarditis, urinary tract infections including acute gonococcal infection, prophylactic use in surgery, and in certain infectious diseases of mixed bacterial origin.

Affords prompt and prolonged therapeutic levels.

Features economy and ease of administration.

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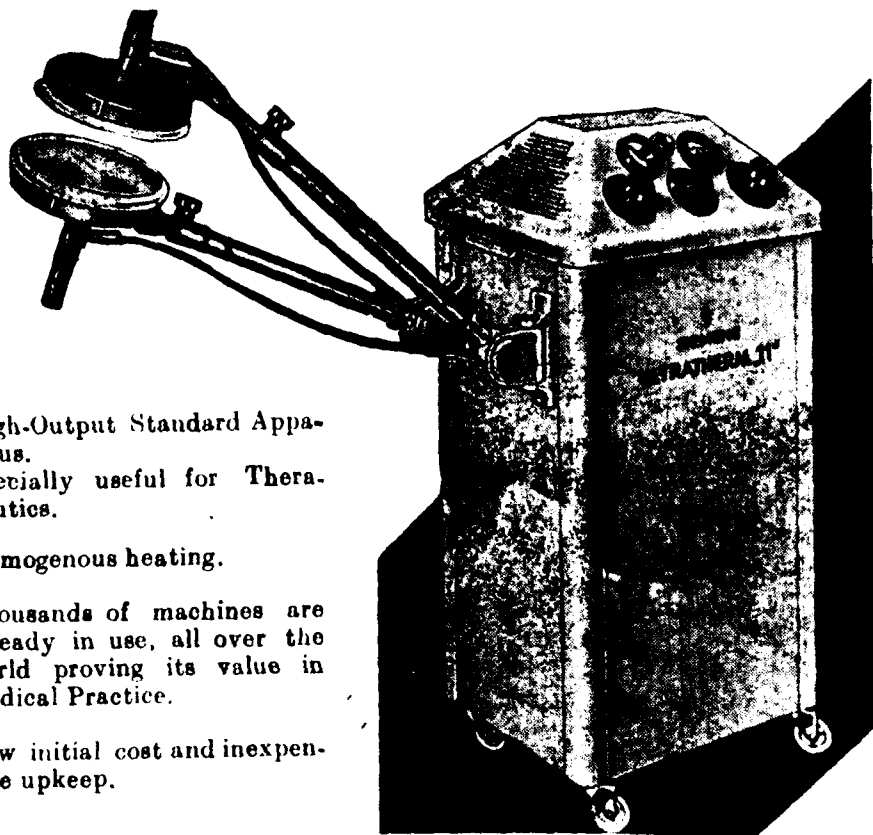
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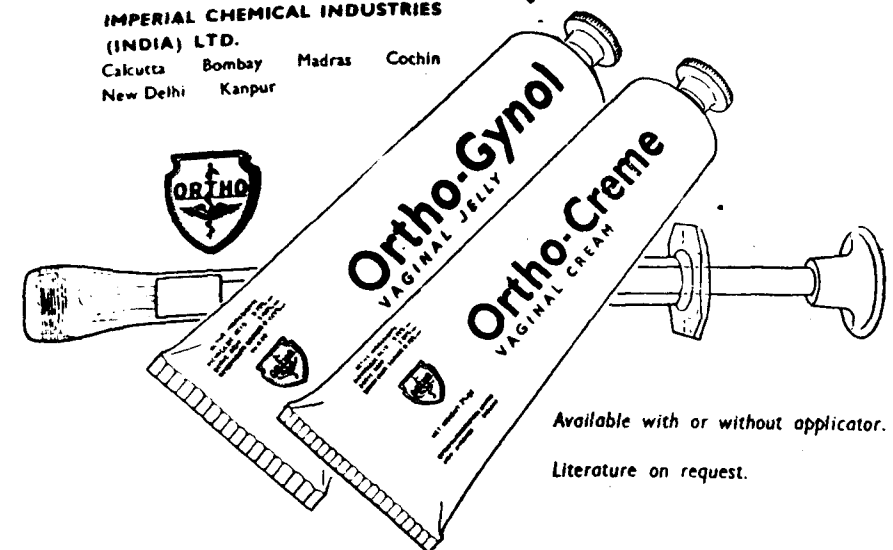
Ortho-Creme

Similarly effective, but allows the prerogative of choice

to the fastidious. It has the touch of

fine cosmetic cream.

Sole Distributors in India for
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Available with or without applicator.

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IX-A 174

During the
critical
first 4 days
depend on



"TIMED-ABSORPTION" CATGUT

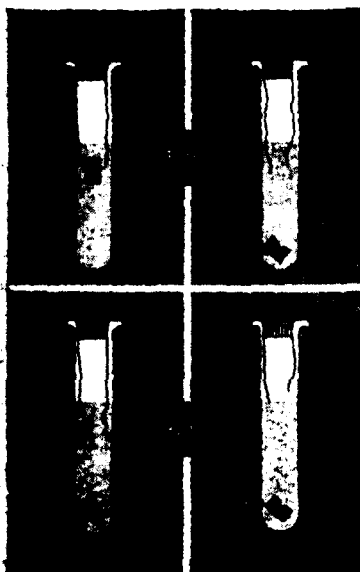
Because "timed-absorption" catgut (surgical gut) has a measurable and predictable rate of digestion, demonstrated by extensive tests, it remains intact until the wound has gathered support of its own. Because "timed-absorption" catgut does not digest prematurely, it assures strength when needed most — during the critical first 4 days following major surgery.

Processed by an exclusive Davis & Geck method embodying accurately graded degrees of tanning, "timed-absorption" catgut has an absorption curve that parallels the changing tissue conditions of healing. Resistance to digestion is maximal during early repair. Later, when artificial strength is no longer required, dissolution is rapid and complete and no remnants of gut remain.

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D & G catgut sutures have a special matte finish. They tie readily and do not slip at the knot. Pliability is exceptional and tensile strength, diameter for diameter, is guaranteed unexcelled by any other brand. No wonder so many surgeons agree on D & G.

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Special New Year's Gift on order of Rs. 300-0: (1) Plastic Stethoscope Pouch with Handle
(2) Plastic Purse with Diary will be sent.

Terms of Payment:—By V.P.P. or Bank. 25% advance from New Clients

Combiotic Pfizer (Penicillin & Strepto)	7-8	Eustine Hydrochlor H.T. 12x6; gr. or 1 gr. March 4-8	
Proflavin (Acriflavin) 500grms. 30-0 25grms.	2-12	Sulphanilamide Cream 4 oz. Lilly	5-8 doz.
Dihydro Strepto Pfizer 3-8; Merck	3-4	Gentian Violet Jelly Lilly	5 8 doz.
P.D. 3-8; Upjohn 3-4; Belgium	2-14	MS Acetylarcos Adult 6-12;	child 4-12
Penicillin G. Sodium:—		Neptal 6 x 1 c.c. Rs. 2-8; 6 x 2 c.c.	3-8
1 2 5 10 lacs.		Soluseptycin 25 amps. 5 c.c. 20%	20-0
0-12 0-13-6 1-6 2-10 Merck		N.A.B. 15 1-2; 3 1-5; 45 1-9; 6 1-11	
1-0 1-8 2-12 Pfizer.		MS Bicarson 500 bot. 20-0; Stovarsol tab. 500 38-8	
" Procaine Pf. 3x1cc 2-14 4x1cc 3-0 Merck 2-14		P.D. Abdee Drops 6-4; Abidol G. 25's 5-0 U.S.A.	
" " Oil 3 lacs x 10 cc. Merck 11-8 Pf. 12-8		Adrenaline in Oil 6x1cc 3-8 Antiturin's 17-12	
" " 3x1 cc B.W. 1-9; 4x1 cc 2-2; Ger. 2-2		Combex 10 c.c. 7-2; Camoquin 3 tabs. 2-14	
" Tabs. 2 lacs. G.L. 9-8; Lozenges 500 11-8		Liver Extract 2 U.S.P. 4-4; 5 U.S.P. 8-4	
" Eye Oint. 8-8; Skin 10-3; (Lozenges 13-8		Faradol 1 lb. U.S.A. 7-4; 2 1/2 lb. 18-0	
Aureomycin 8 Caps.	19-4	P.D. Pituitrin 6 x 1/2 cc. 8-8; 6 x 1 cc. 11-8	
Chloromycetin 12 caps.	25-12	Metastone 12 oz. 6-4; 6 oz. 4-8 U.S.A. Livibron 6-6	
Terramycin	8 18-2; 18 35-8	Liq. Taka Diastase 4 oz 4-12; 8 oz. 7-0	
Quinine Bengal 47-12; Java 51-8; Howds 53-8		B.W. Cal. Gluco 10% x 10 c.c. x 100 amps. 45-0	
" Stand. 42-0; Howds oz. 4-6; Bihydro oz. 7-8		Sandoz	103-0
Quinine Bihydro Amps. 100 x 10 grs. x 2cc.		" " 20 amp x 10 cc. 22-8; 5 amp 6-8	
Ind. B.D.H. Evans B.W. P.D.		" " 100ampx5cc. 95-0; 10 amp 10-12	
18-8 28-8 25-0 31-8 48-8		Oxide Liver Extract 5 U.S.P. x 10 cc. 4-8 Eng.	
Ind. 100 x 5 grs x 1 cc. 13-0 BDH. 21-8		Benerva 100mg.x50.c. 4-0; tablets 10mgx20 2-0	
Pamaquinine Tab. 300 0-14 bot. (6; gr. BI. 14-0		Redoxen 20's 1-10; 100's 6-6; Lurestidia 6x2cc. 6-0	
Q. Bihydro Italy 15grs. x 5x2cc. 1-2; 100, 20-0		" 6 x 2 cc. 5-4; 50 x 2 40-8; 3 x 5 cc. 4-8	
" Bissip tab. Java 2 grs x 100 3-0; 5 grs x 100 5-0		" 25 x 5 cc. 32-0; Synkavit amps. 5-12	
" " 5 gr x 1000 BDH 41-0; Howds 1400 52-0		Saridon 10's 17-8 doz. 250's 32-0	
" " 5 gr x 500 29-0; Bihydro 29-8		C.L. Beris 25mg.x 10 c.c. 2-8; 50mg. 4-0 100mg. 6-4	
" Bihydro 2grx 100 4-4; 5grx 100 7-8; How. or Roche		Calci Ostelin 15 c.c. 3-12; Erbolin caps. 10's 1-10	
Q. " H.T. B.D.H. 15-0; Gibazol 20 T. 1-12		Nicotinic Acid 500 4-4; (100's 12-8 bottle)	
Ese quinine Java 4-6; Roche 4-8; Holland 4-6 dr. 1-4		Estapin 5 lacs bulb 4-0; Stibantzin Conc. 4-4	
P.A.S. 100 grms. Italy Bayer Dumex Herts		Vitamin B-2 20 mio. x 6 x 1 c.c.	4-8
5-8 12-8 14-0 12-12		" 50 mio. 5 c.c. 6-0; 6 x 1 c.c. 7-12	
" 100 Tabs 4-2 8-8 11-10		Glucose D 1/2 lb. 14-8 doz. 1 lb. 25-8 doz.	
" 250 10-12; 500 10-12 Italy		BW Aminophylline 6 x 2 cc. 5-4; 6 x 10 cc. 6-4	
Quinidine Sulphate tab. 100 14-0; Powd. bz. 12-0		" tabs. 25's 2-0 100's 8-0	
Atelrine Bayer 15 9-12 dz. 300 9-0; Bat. 1000 19-0		Digoxin tabs 25's 1-14; 100's 4-8; 500 17-8	
" Amps. 1 grm. x 5 3-12; 50 amps. 35-0		B.W. Pituitary 1/2 c.c. x 6 amps. 4-4; 1 c.c. 6-4	
" 3 grm. x 2 2-8; 25 21-0		" 100 x 1/2 c.c. 57-8; and 25 x 1 c.c. 25-8	
Quinacrine M.B. 500 7-0; 1000 13-8; 1000 USA 10-12		Crookes Vitamin D 15 a.c. 4-2; 30 c.c. 7-12	
" USA 5000 tabs. tin per 1000 10-6		" Iodine 6 x 1 cc. 4-2 5 cc. 4-12 10 cc. 6-0	
Mepacrine tabs. Eng. 13-12; ICI 12-12		Cardiophyllin I.V. or I.M. box 6-8; Tab. 20 3-0	
Peludrin 3 grms. x 1000 52-8; 3 grm 500 26-0		Ergocalciferol Caps. 9-8; Gynomin tab. 1-14	
" 1 grm x 1000 29-12; 3 grms 496 27-8		Neo Heptex 3 x 2 c.c. 11-0; 10 c.c. 14-8	
" amps. 25 11-4; 5 amps. 3-4		Liq. Sedans 4 oz 4-0; Potter Planks.	
Sulphanilamide tabs 7 1/2 gr x 1000 10-8; 5 gr. 7-0		Carity Plaster 1/2" 9-8 doz. 1" 15-8; 2" 30-8 doz.	
" tabs MB 500 6-8; Glaxo 14-12; Powd. 1-8 oz.		Martin Apol and Steel Tins 5-4 bottle (3" 45-0	
" Eng. 500 5-8; Powder lb. 10-0		Mistol sm 24-12; las 49-8 doz. Aleteria Cor 13-4	
Sulphaguanidine Tab. Aust. or Eng. 1000 32-8		Leu cotropine I.V. 18-0 I.M. 15-0 box	
" Tabs. 500 Boots 17-0; B.W. or ICI 18 0		Scott Emulsion small 24-8; large 51-0	
Sulphadiazine Tabs. MB 500 52-8; BDH 43-8		Menola Wine 9-12; Slon's liniment 28-8 doz.	
" USA 1000 80-8; 500 AFD 48-8		Seven seas Cod. Liver Oil 8 oz. 5-0; 1 lb. 7-4	
Sulphathiazole Boots 23-8; Merck 1000 39-8		Sanmeto 18-0 bottle Vitmol Comp. 11-8	
ICI Sulphamoxathine 500 30-8; 100 7-0		Vicks Inhaler 19-8; Vapour 29-4 doz.	
BW Sulphetrone 100 10-4; 500 44-0		Winocarnis small 18-0; large 36-0 per bottle	
M&B 693 500 41-8; M&B 760 500 32-0		Waterburys Comp. 75-0 Wampole Phospho 13-4	
Cibazol 250, 16 4; Enterovioform 100 11-4		Neosalvarsan .15 1-12 .3 3-8 .45 2-11 .6 3-2	
Emetine Hydrochlor Amps		Campelas 5x2c.c. 6-0; 25x2c.c. 30-0 100 amp. 116-0	
1/2 gr. B.D.H. 1 gr. B.D.H. 1/2 gr. B.W. 100 amps.		Entodan amps. 8-4; Mitigal oint 1-12 tube	
65-8-0 96-8 65-0 Box		Acid Boric Oint. 4 oz. U.S.A. 9-0 doz.	
1/2 gr. 25 amps B.D.H. Endo 6x1gr. 6x1gr. France		Omnipon Amps. with Needles Comp. Tabs 1-0	
14-4 2-4 5-8 box		B.W. Morphia Sulphate & Atropin 20 x 1/2 gr. 5-0	
1/2gr.x6 P.D. 1gr.x6 amps. P.D. B.W. 12x1gr. 6x1gr.		Indian " Amps. 6 5-12; tabs. 1/2 gr. 20's 3-0	
7-8 11-0 10-4 9-12		Vitamin K amps B.W. 100 x 1 cc. 25-0	

[illegible]

BOMBAY-2.

85

Bandages J.J. 3" x 6 yards
 " Khaki 3-0 Artery Forceps 5" 2-8
 Adapter Japan 6-6; USA 0-12; Catgut J.J. 1-0 ea.
 Antemisor Spewel 8-12; Anto Throat Spray 3-0
 Bed Pan E.Lem. 5-8; Med 6-0; Large 7-4 each
 Breast Pump USA 2-8; Jap. 1-3; Continental 2-8
 Chip Sore Pkt. 2-0; Pill Boxes Cheap 1-0; Sup. 1-8
 Catheter Ind. 0-12; Jap. 1-0 Italy 1-4 Germ. 1-8
 " Metal male 2-4; Female 1-8 each.
 Cheek Peasary 1-0; Hodges Peasary Vulo. 1-4
 Cork Sorew o Tin Cutter 1-8 Silk Veragel box 2-0
 Cork For Disp. Bott. N.M. Assorted 1-4 CR
 Dispensing Btt. N.M. (1 to 2 oz White) Rest Grad
 1 oz 2 oz 4 oz 6 oz 8 oz 1 lb
 7-0 11-0 11-0 15-8 18-8 32-0 gross.
 Dispensing Scale 4-4; Nickel 5-4; Dressing For-
 Scissor 1-8; Elastoplast 2" or 3" 3-0 ea [cops 1-0
 En-ma Syringe Cont. 3 8 Eye Bath Glass 1-0 ea.
 Eye Dropper USA 2-0; USA Type Ind. doz. 0-12
 French Leather Durex 3 in a pkt 2-8 tin 5-0 doz.
 Washable Durex 2-0; Ind. Crocodile 1-8 each.
 Funnel Glass 4 x 1-4; E.I. 1-12 each.
 Glycerin & Ear Metal Syringe 2 oz 6-0; 4 oz 7-0
 Hot Water Bag Ind. 4-0; Dunlop 9-4; Cont. 10-4
 Ice Bag Ind. 1-8; Germ. or Italy 5-0; Canada 4-8
 Lable Book Plain 2-0; Coloured T.B. 4-0
 Laetometer Germ. 1-8; Ind. 1-0; Zeal 3-0
 Makintosh sup. 4-8 yrd. Niple Shield Eng. 1-4
 Microscopic Glass Slides Germ. 6-0 Grs.
 " Cover Glass Jap. 5-8; oz. Nasal Douche 1-8 ea.
 Measure Glass (Litmus Paper J.J. 8 & 2 doz 2-0
 2 dr 1 oz 2 oz 4 oz 8 oz 1 lb.
 0-10 0-12 0-14 1-0 1-8 2-8 ea.
 Mortar Pestic Wedgewood (Sea Tangle Tent 0-8
 Norway 4-4
 1" 2" 3 4 5
 2-4 3-0 4-0 5-0 6-0 Ind. each.
 8-4 10-8 12-8 15-8 18-0 Eng. "
 Needle Record Mount:—(D.B. 14 & 16 5-0 doz)
 Jap. Germ. M.D. DB. Bacon
 2-4 2-4 4-0 4-8 2-12 doz.
 Germ. 3-8 doz.
 All Glass Mount Jap. 3-0;
 Perfectum 5-12; B.D. 9-8; B.D. 14" 11-8 doz.
 Plaster of Paris Bandages Gypsone 3 yrd.
 3" 1-12; 4" 2-4; 6" each. 2-12; [Germ. 2-8
 Rubber Gloves U.S.A. 7 1/2" or 8" Pair 1-0; Cont.
 Stomach tube o B & F Ind. 5-8 [Germ. 8-8 each
 " Tube & Funnel Ind. 5-4; USA 6-8 each
 Stethoscope B.D. 21-0; Triple 42-8; Germ. 11-8
 " B.D. Type Jap. 9-8; Bacon 14-0; Cheap 3-8
 " Tubing Ord. 1-0; Plastic 2-0 yrd Sup. 8-0
 Spatulas 5" 1-4; 6" 1-8; Safety Pins. Gra. 2-8
 Spirit Lamp Glass 2 oz 1-8 4 oz. 2-8
 " Metal " 2-8 " 3-8
 S.N.
 Hypo. Syringe (S.N. Re. 1-8 More)
 All Glass Japan 2 5 10 20 30 50cc
 0-12 1-4 1-12 2-12 5-0 6-12
 " " Italy 1-12 2-8 3-4 7-0 9-0 11-0
 " " German 1-4 1-8 2-10 3-8 7-12 9-8
 Record German 4-0 6-0 7-4 10-0 14-8 23-0
 " Comp. 7-0 9-8 11-8 — —
 Boston 5-12 6-4 7-8 — —
 Italy Rec. 3-4 4-12 6-12 9-0 13-4 17-8
 B.D. Lear Lock 7-0 10-8 13-0 16-0 23-0 32-0
 Japan " 3-8 5-8 4-12 7-8 10-0 16-0
 Italy Metal case 1-4 1-12 2-4 3-0 —
 Japan " 2-0 3-4 5-0 — 11-8 13-8
 " " 1-8 2-12 3-0 — —
 Beckelife case 1-8 2-12 3-0 — —

Sterilizer Nickel 6" 13-0; 8" 21-0
 Tooth for Sets (Universal) 5-0; USA 8-0
 Thermometer
 J.P. USA. Eng. Hicks. Zeal. German. J.P. Flat.
 1-0 1-12; 1-10; 4-12; 2-14; 1-6; 1-14
 German Erkameter 68-0; Baumometer 125-0
 Saline Apparatus 300 cc. 9-0; 500 cc. 11-8
 Weighing Machine Detecto 40-8; Salter 59-8
 Scalpel 1-10; [Alexandra 67-8
 Stetescop Plastic Pouch 2-8; Leather 3-8
 Tuberculin Syringe 6-8; Insulin Syringe 6-8
 Lumbar Puncture Needle 6-8; Hamoglobin
 Surgeons' Apron White Sup 9-8; Scale-book 4-4
 B.P. Blades 3-8 Packet Handle 3-8
 Tongue Spatula St. 1-8; Folding 2-4
 Rectal Tube 20" Germn. 4-0; Ryles Duodenal
 Douch fitting Set Ind. 1-0; Ita 1-4; [Tube 4-6
 Douch Can 2 pint comp. 3-4
 Glass Rods 1-12 doz.; Urinometer 1-8
 Horse Hair 100 Strand 2-8; Silk Ligature 1-8
 Air Cushion I.R. 12 " 4-0; 14 " 4-8; 18 " 5-8
 Sacrometer comp. Ind. 5-0; English 10-0
 Fischer Dental Syringe 14-0; Needle doz. 2-0
 P.A.S. amps. Cilgax 5 x 10 cc. 9-8
 Solu-septicin 25 x 5 cc. x 20% 20-0
 Vitamin B2 Roche (Bedavin) 50 x 10 amps. 20-0
 Bedome 100 mg. x 5 cc. 4-10; 10 cc. 7-4 [box
 Esdavit caps. 20's 13-8; 30's 18-8; Hypobeta 8-8
 Cytoserum 9-8; Hemocyto 11-8; Sucrats 1-4
 Novalgin 10 x 2 cc. 8-0; Tabs 10's 2-6
 Salargan 5 x 1 cc. 4-1; 5 x 2 cc. 5-10; 10 x 2 cc.
 Erythrogen 10 cc. 3-4; [10-8
 Aloin oz. 3-8; Soda Cacodylate oz. 6-12
 Biss. Subgala oz. 2-4; Papain oz. 4-8
 Pepsin Dab 6 2-0 oz.; B.P. 4-0 oz.;
 T.C.F. Lever 6x2 cc. 3-10; 25 s 14-10; 10 cc. 3-2
 " Cum Vitamin C & B 6x2 cc. 5-6; 10 cc. 4-5
 " " B 12 6 x 2 c.c. 6-6; 10 c.c. 4-12
 Plastule "Folic 72-0; Liver 48-0; Plain 30-0
 Wyamin 50 6-6 doz. Osivite 50 Caps. 5-8
 Amylin Nit. caps 10's 2-8 box. Diseasee 100's 26-0
 Lilly Insulin 40 units 10 c.c. 6-0; Lilly P. Zinc 7-0
 Trinitrin tabs. 1/100 B.W. 2-4; Eng. 1-12
 B.D. Luer Lock Control Syringe 10 cc C-N. 26-8
 " Kaufman Syringe 14-8; Absorbent Tow. 2-12
 " 3 ways stop cock with sinkers and
 " (Ind. 14-8) Rubber tube 26-8
 Ideal continuous Flow Syringe 13-8
 Oily Needle 7-0 doz. Saline Needle 2-4 each.
 Suture Needle 3-8; Imported Eng. or Germ. 6-0 doz.
 Serum Needle 3" 2-4; 2" 1-12 each.
 A.P. Needle Eng. 15-0; Ind. 9-0 each.
 Gowlands Diagnostic set with
 " Ophthalmoscope 120-0
 Head Mirrors c cloth Band Gowlands Eng. 11-8
 Hamocytometer comp. Ger. 32-8;
 Erkameter Rubber bulb 8-8; Metal Valve 12-8
 Finger Stall 1-0 doz. Flatas Tube 30" 3-0
 Tourniquet in Tin. 2-8; First Aid Box 15-0
 Chart Temperature 100 3-8
 Chloroform Drop Bot. 4 oz. Eng. 7-8
 Pill Tiles plain 8" 4-8; Graduates 8" 5-8
 Pulsometer 2-8; Cum Lancet 3-8
 Wall Thermometer 4-8; Zeal 15-8; Jap. 12-8
 Amp. Morphine Tartrate Squibs 5 x 1.5 c.c.
 1 gr. 0-10-0 box

BOMBAY-2.

For *Arthritis-Sciatica-Fibrositis-Rheumatism*
 B/- **Tablet RHEUMOPHAN COMPOUND**

(SOME CLINICAL FINDINGS)

Case 1. OSTEO ARTHRITIS

Care of Dr. MRCP, MROS, DTMH.

Arthritis for 3 years—tried allopathic, homoeopathic treatments—subject to "deep-ray" therapy—two operations performed—pains extended from lower back to right arm which could hardly be moved—no sleep without sleeping specific—pain continued—Rheumophan Compound 2 tabs. T.D.S. with milk for eight weeks—Patient informs: "Rheumophan has completely cured me of Arthritis. I am now taking 2 tabs. per day as a general tonic".

Case 2. ARTHRITIS

Care of Dr. MB, MRCP, LROP, DTMH.

Used Rheumophan Compound on two Hospital cases—improvement in joint pains in both cases—in the case of one both the swellings and pain had resisted to Sulpho-namide and Penicillin treatments.

Case 3. SCIATICA & FIBROSITIS with ARTHRITIS of degenerative type.

Care of Dr. MD.

Age 54—complete relief within 8 weeks—pain relieved and walking became much easier.

Case 4. POST DYSENTERIC ARTHRITIS

Care of Dr. MRCP, DTMH.

Rheumophan Compound tried satisfactorily in 2 cases of post dysenteric arthritis—in one patient there was relapse of joint pains etc. after the discontinuation of the drug. The relapse was milder and immediately responded to Rheumophan again.

Case 5. LUMBAGO

Care of Dr. MD, FCPS.

Age 25—clerk—pain in back, fever, difficulty in bending down, tenderness in lumbosacral region, slight spur in iliac crest region—Penicillin injections—slight improvement—Rheumophan Compound—improvement much more.

Case 6. CHRONIC RHEUMATISM

Care of Dr. LCPS.

Age 38—severe pains all over the body—no sleep—taking opium for relief falling off hair—anaemia—supratrochlear & cervical glands palpable—urine clear—WR & K negative, mapharside in calcium 6 injes. & mist iodide & HP for 1 1/2 months—no relief—pains from bad to worse—Rheumophan Compound treatment for 15 days completely relieved pains started walking about treatment continued for a month—no relapse reported.

Case 7. NEURALGIA

Care of Dr. LCPS.

Age 70—tingling, numbness, shooting pains all over the body—for six months—shouting day and night—treated with a course of Vit-B Iodide and Salicylate injections—pains continued—Rheumophan Compound treatment for about 3 weeks relieved all pains—could sleep—treatment continued for 3 months—discontinued since long—keeping well without relapse.

Case 8. RHEUMATIC HEART

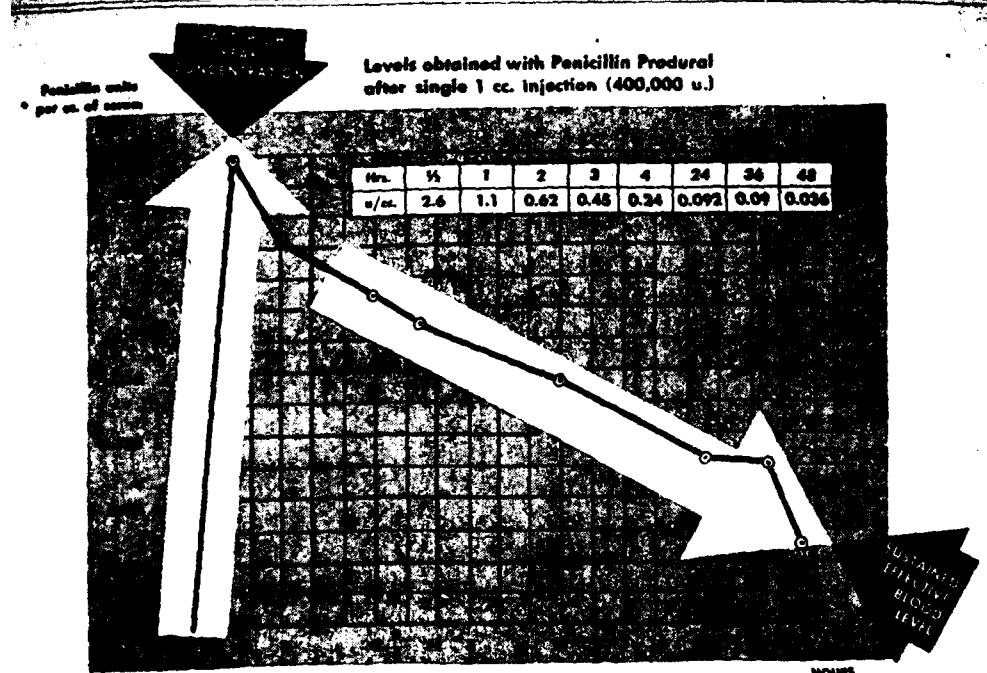
Care of Dr. MBDS

Girl of 20 years—acute pain in the cardiac region frequent attacks severe thrice a week. Rheumophan Compound treatment—pain has absolutely disappeared—for last three months no attacks.

AVAILABLE IN PACKINGS OF 60, 120 & 500 TABLETS

Literatures from :

ALARSIN PHARMACEUTICALS (INDIA) P. Box-14, BOMBAY-1.



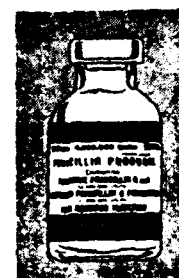
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Twofold protection ... provided by a single injection of PENICILLIN PRODURAL.

Fast action ... high initial blood concentration—peak within 2 hours.

Sustained action ... effective blood level lasting for at least 24 hours.

PENICILLIN PRODURAL is a stable, dry combination of penicillin salts, which, with the addition of an aqueous diluent, supplies 100,000 units of Buffered Crystalline Penicillin G Potassium and 300,000 units of Crystalline Procaine Penicillin G in each 1 cc. of the resulting solution-suspension mixture.



PENICILLIN PRODURAL—Manufactured by MERCK & CO., Inc.

Supplied in 1-dose vials (400,000 units), 5-dose vials (2,000,000 units), and 10-dose vials (4,000,000 units). Stable for 18 months in the unopened container, or for 1 week under refrigeration after the addition of the aqueous diluent.

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 161 Avenue of the Americas, New York 13, N. Y., U. S. A.

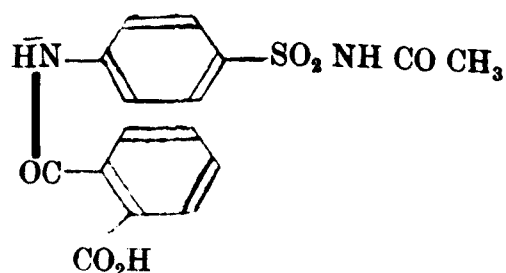
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Cholera, Bacillary dysentery, Ulcerative colitis etc.

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for the first time in India.

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CHEMO-THERAPY FOR RESPIRATORY DISORDERS

Drakshina :—

Remarkable selective tonic for its prophylactic and remedial effects for respiratory catarrhal affections, Drakshina acts as a specific in congestive conditions of upper and lower respiratory tracts, such as—common head colds, coryza, nasal, pharyngeal, laryngeal and bronchial catarrhs due to exposure and infections, influenzal or otherwise. In Tubercular diathetics, Drakshina will be found a supportive treatment to specific treatment.

Calcina :—

A double salt of Calcium-sodium lactate combined with organic Calcium phosphates and Vitamins A & D to correct Calcium Deficiency and associated complaints. Vitamins A and D have been added to our original Calcina, in order to enhance Calcium utilisation.

Calcium Lactate Tablets :—5 gra. and
Calcium Gluconate Tablets :—7½ gra.

for Calcium therapy in uncomplicated cases.

Nokuff :—

An ideal remedy, superb in its action for respiratory diseases due to chills and exposure or bacterial infections of the respiratory tract. The pharmacopoeial ingredients of Nokuff are Terpene Hydrate, Thiocol, Calcium Gluconate, Ephedrine Hydrochlor, Codeine Phosphate etc. (Also available without Ephedrine)

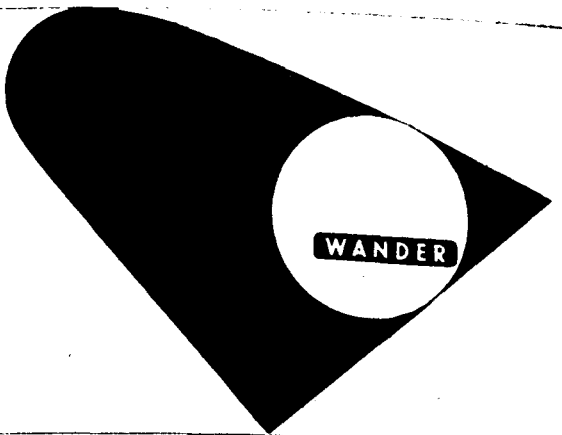
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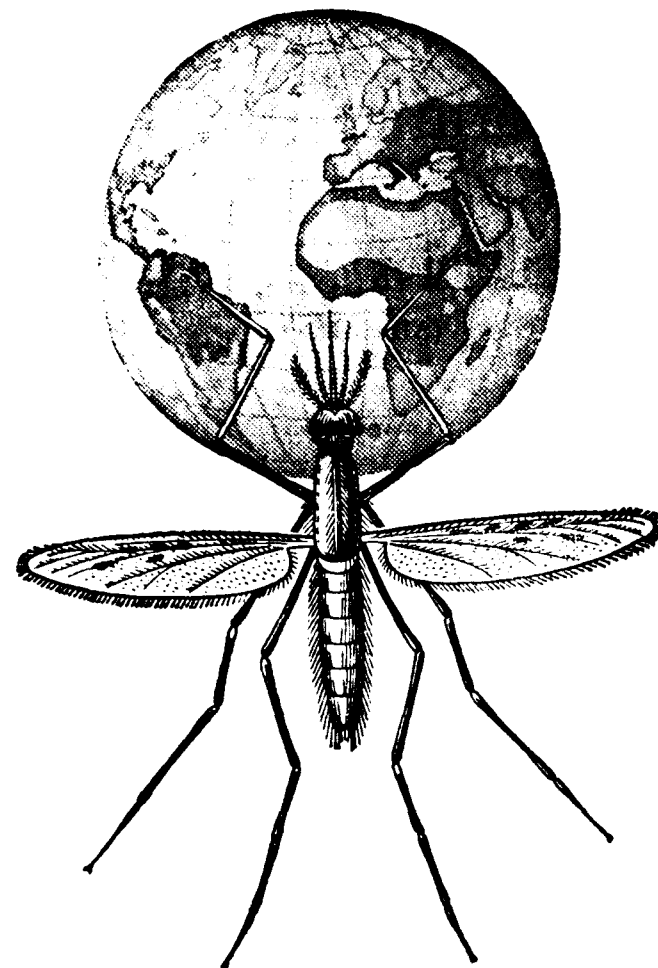
PALLICID

(4-oxy-3-acetylaminophenylarsinic acid containing 27.24% pentavalent arsenic.)

The anti-syphilitic of confidence for oral administration.

Available in Tubes of 20 Tablets (each 0.25 gm.)

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A New form of PAS Therapy

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Calcium PAS

(Albert David)

Composition :

Para-amino-Salicylic Acid	88.9%
Calcium	11.6%

- * Introduced in the form of easily absorbable coated granules.
- * The tasteless granules avoid making solutions or syrups for administration. They can be taken as such and are easily acceptable.
- * Avoids irritation of the stomach.
- * The assimilable Calcium helps in "walling-off" the Tuberculous foci.

Available in bottles of
100 gms. granules with a dosage measure

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JANUARY 1952

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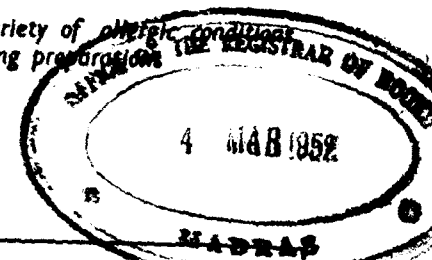


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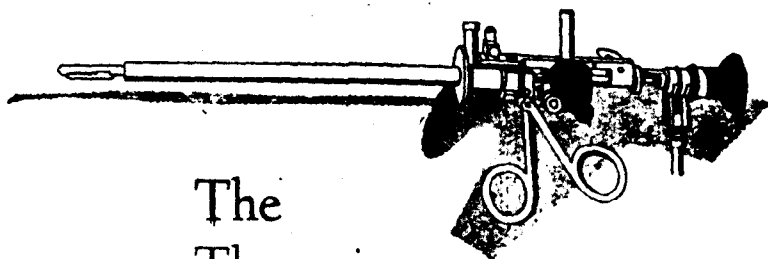
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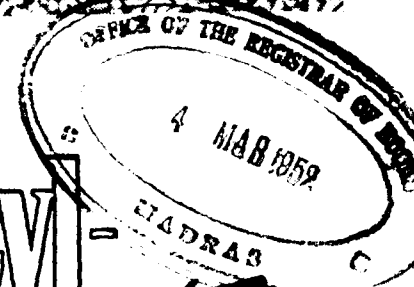
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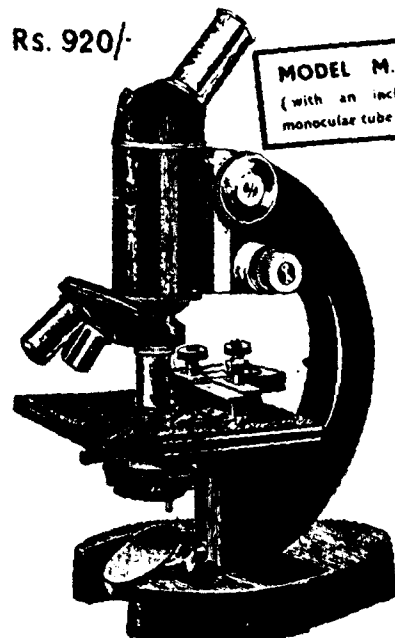
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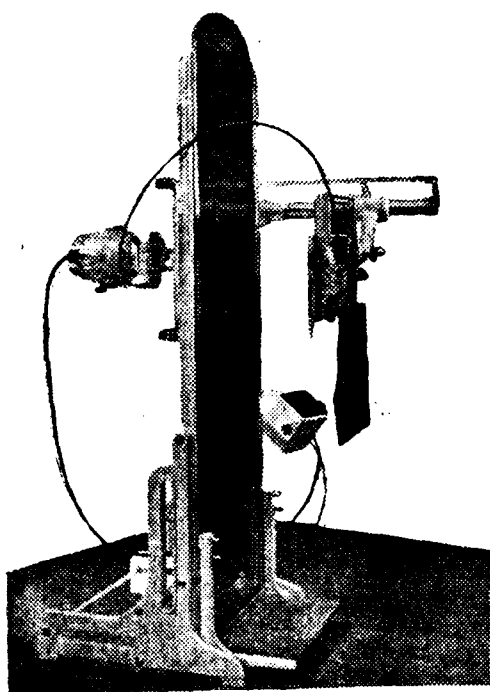
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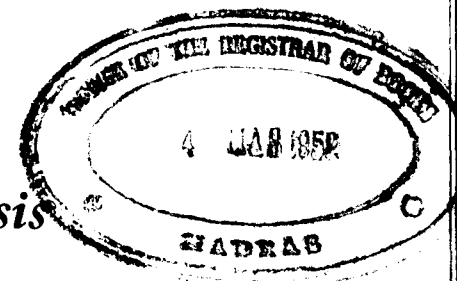
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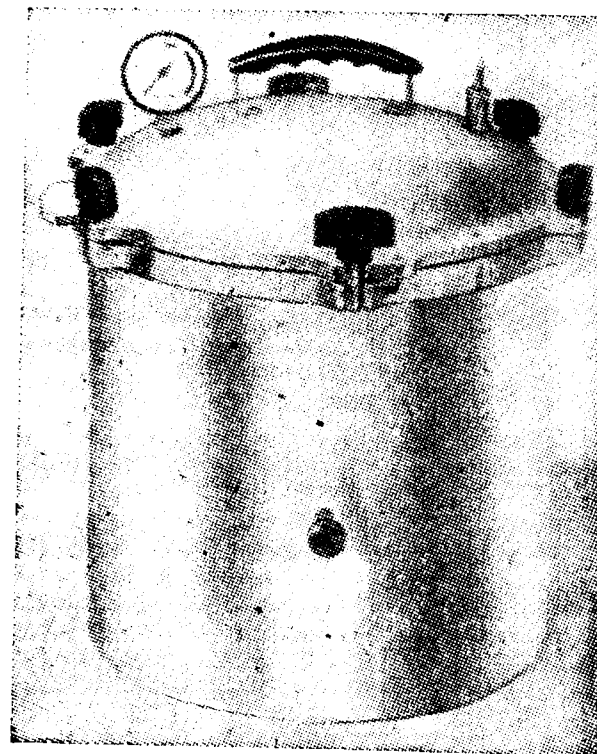
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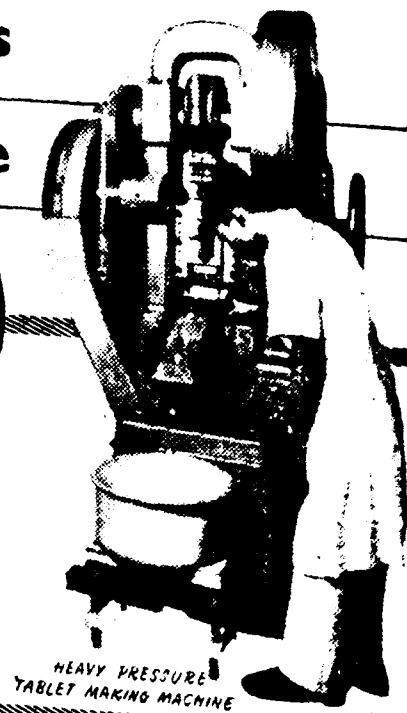
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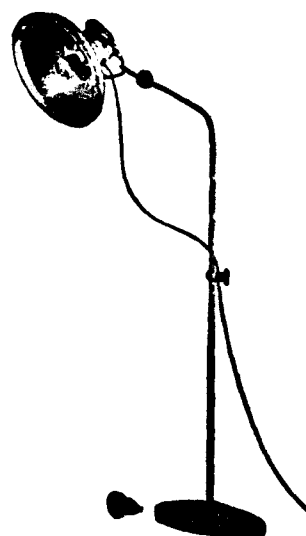
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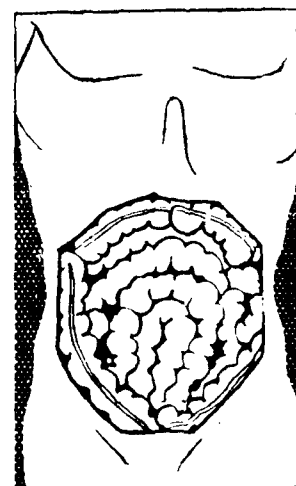
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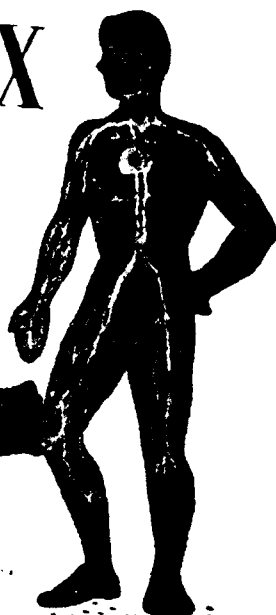
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An effective antacid for conditions of gastric hyperacidity and its sequelæ. It is palatable to take and no by-effects have been observed even on prolonged use.

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Bottles of 6 fluid ounces
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It contains per cc. 50 mg. metallic Bismuth in the shape of a basic sub-salicylate and 2.5 mg. metallic gold in organic Sulphurous compound in a non-irritant oily suspension. It is very well tolerated and economic in use.

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Vegeto-Pluriglandular Complex for Therapy of the Various Gynecological Disorders of Women

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FREE Order despatch value Rs. 50-0 or more will be given one bottle Berin Glaxo's 1 mg. 25 tabs. free.
GIFT Order despatch value Rs. 100-0 or more will be given one Plastic Money Purse with Diary free.
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Dihydro Strepto 1 gm. Pfizer 3-4 P.D. 3-4 Merck Vial 3-2	Hypo Record Needle Japan or German doz. 2-8
Pfizer's Combiotic (Penicillin c/- Strepto) Vial 6-4	" All Glass " Japan 3-8; German " 4-0
Terramycin 8 Caps. 18-0 12 Caps. bot. 35-6	Lactopeptin Elixir sm. 28-8; lg. doz. 50-0
Aureomycin 8 Caps. 18-0 Cibazol 250 tabs. " 15-12	Lavandar Smelling Salt Eng. " 13-8
Pfizer's Procaine Penicillin Aqueous 4 lac. 10-0	Leukoplast Elastic 3x5 yds. 2-4; 2½x5 tin 2-0
" Vial 2-14	Lilly's Gentian Violet Jelly 4oz. tube. 0-7
Sulphur Bitter Eng. 10-0; Aletris Cordial Eng. Bot. 5-8	Lilly's Sulphanilamide Cream 4 oz. " 0-7
Pamaquin 0-1 gm. 500 0-14 Sariden 250 tabs. " 29-0	Litmus Paper Book Assr. doz. 1-0
Distaquine Eng. 4 lac. 1 c.c. Box of 5 Vials box 9-4	M. & B. 693, 100 tabs. 9-0; 500 tabs. tin 43-0
M&B N.A.B. 15-0 11 30-0 12 45-0 14 60-0 each 1-2	" Neptal 6 x 1 cc. 2-8; 6 x 2 cc. box 3-8
" Praequine 500 tabs. 6-0 M&B 760, 500 " 32-0	" Acetylarsan 10x2cc. 4-12; 10x3cc. box 6-8
" Soluseptasine 20% 5cc. 25 amps. box 19-8	" Leucarsone 4 gr. 500 tabs. tin 20-0
" Stovarsol 4 gr. 30 tabs. 2-8 500 tabs Tin 37-8	" Propamidine Jelly 1 lb. bot. 9-4
Cork Screw with Tin Cutter each 1-0	" Sulphadiazine 100 12-0; 500 Tabs. Tin 51-8
Tongue Spatula Straight 1-8; Folding each	Menthol Crystal 1 oz. 5-0; Gynomin tabs. 1-14
Ergoapiol Smith's 20 Caps. Tube 9-0	Neo Salvarsan 15 1-12; 30 2-6; 45 each 2-11
Gripe Water Woodward doz. 25-8	Paludrin 1gm. 1000 tab. 29-4; 500 tab. 3gm. " 26-4
Himrods Asthama Cure " 90-0	P.D. Chloromycetin 12 Caps. bot. 25-12
Huxley's Wintogeno Cream " 24-0	" Liver Ext. 2 USP 10cc. 4-6; 5 USP 10cc. ea 8-4
Iodex Plain or Methyl " 21-12	" Dinaltin Sodium 100 caps bot. 6-0
Macleans Stomach Powder Med. " 21-0	Penicillin Sodium Cryst. G.: —
Martin's Apioil Steel Pills bot. 5-0	Merck's 1 lac. 2 lac. 5 lac. 10 lac.
Scott's Emulsion Sm 24-8; Lg. doz. 50-0	0-12 0-13 1-6 2-10 vial.
Bayer's (German): —	Pfizer's 0-14 0-15 1-8 2-12 "
Atebrin 15 0-13; 300 9-4; 1000 tabs. bot. 18-8	Quinacrin USA 100 1-2; 1000 tab. USA bot. 11-4
" 0-3gm. 2amps. 2-0; 0-3gm. 25 amps box 20-0	Quinine Sulph Govt. B.P. 47-8; Std. lb. 41-0
Boot's Plurivite 100 caps. 7-8; Burnol Each 1-2	" Roche 56-0; Java 51-0; How. " 53-8
B.W. Atrophia Sulph 1/100 gr. 20 tabs tube 0-8	" Ind. 3-12; How 4-8; Bihydro oz. 8-0
" Emetin Hydro ½ gr. 12 tabs. Tube 6-8	" Bihydro 2 gr. 100 4-0; 5 gr. 100 bot. 7-0
" " 1 gr. 6 x 1 cc. 9-12	" Italy 15 gr. 2c.c. 5 amps. box 1-0
" " ½ gr. 12 x 1 cc. box 10-4	" Bisulph 2 gr. 100 3-0; 5 gr. 100 tab. " 5-0
Ciba's Cibazol 250 tabs. bot. 15-12	" B.W. 10 gr. 12x2 c.c. 4-8; Evans " 4-0
" Coramine Liq. 15 c.c. 3-14; 20 tabs tube 3-2	" " 5 gr. 1cc. 6 amps. B.D.H. " 1-14
" " 17c.c. 5 amps. 2-12 20 amps 10-8	" " 5 gr. 1cc. 100 " B.D.H. " 21-0
" Enterovioform 20 2-14; 100 tabs bot. 12-4	Quinine Bihydro 10 gr. 2cc. 100 amps:—
Clinical Thermometers ½ min:—	B.D.H. Evans B.W. P.D. Ind.
German Eng. Japan, U.S.A. Zeal. Hick's	Ra. 27-8; 26-0; 31-8; 48-0 18-8 box
Ra. 15-0 19-8 11-4 18-12 33-0 54-0 doz.	Rubber Gloves "74" or "8" USA per pair 1-0
Elastoplast 2½x5 yds. 2-8; 3x5 yds. tin 2-12	Roche's Redoxon 6 x 2 c.c. box 5-4
Endo's Emetin Hydro ½ gr. 6x1 cc. box 2-4	" Benerva 100 mg. 5 cc. vial 4-4
Eng. Acriflavine 500 2-8; 1000 tabs. bot. 4-0	Stethoscope POUCHE PLASTIC Superior Each 3-0
" Aspirin 5x100 1-0; 1000 " 5-12	Stethoscope Pouches Plastic with Clip ea. 3-8
" Caffein 100 2-0; 1000 " 15-0	Stethoscope POUCHE PLASTIC with double chain " 7-8
" Adhesive plaster ½x5 yds. 0-10 1x5 yds. 1-0	Sulphadiazine 500 48-0; 1000 tabs bot. 78-0
Eng. Hydrageri Iodine Rubrum 12x1cc. " 0-6	Sulphaguanidine 500 17-0; 1000 Tabs bot. 33-8
" Mercury Biniodide 12 x 1 cc. " 0-14	Sulphanilamide U.S.A. 5gr. 1000 tab. " 8-4
" Emetine Hydro ½ gr. 12 or 1 gr. 6 tabs. Tab. 4-4	" Eng. 7½ gr. 1000 10-8; 500 " Tin 5-10
Entodan 10x2 cc. 8-4; Campolon 5x2 cc. box 6-0	Sulphathiazole Boots 500 tabs. tin 23-8
Euquinine Holl. or Java 4-4; Roche oz. 4-10	Suture Needles 0-4; Saline Needle each 1-14
Eye Dropper USA type 0-5 Finger Stall doz. 1-0	Spirit Lamp Glass 2 oz. 1-4; 4 oz. each 2-0
F.L. Paragon washable 0-8; Crocodile each 0-14	" Metal 2 oz. 2-8; 4 oz. each 3-8
" Durex Eng. 1-12; Silvertex USA doz. 2-4	Silk Worm Gut 1-8; Horse Hair 100 Strand 1-12
Glaxo's Berin 1mg. 25 tabs. 0-9; 100 tabs. 1-2	Stethoscope German B.D. Type " 11-8
1mg. 500 " 5-8; 1000 " 10-12	" Rubber Tubing yd. 0-12
Hypo. Syringe All Glass Nacket: —	" Plastic Tubing " 2-0
C.N. — 2c.c. 5c.c. 10c.c. 20c.c. 30c.c. 50c.c.	Three X Towel's Pills Sm. 2-12; Lg. bot. 5-0
German 1-0 1-6 2-0 3-0 6-4 8-0 E	T.C.F. Whole Liver Ext. 10 cc. vial 3-2
Italy 1-10 2-8 3-4 5-0 8-0 10-8 c	" " c Vit. B. Complex 10 c.c. " 4-8
Japan 0-11 1-2 1-10 2-12 5-0 6-0 h	" Vitamin B Complex 10 cc. " 5-0
S.N. — Re. 1-0 More	Wisdom Tooth Brush Adult doz. 12-0
	" " " Junior " 8-0

during
labour



vitamin K
in every case



10 mg. acetomenaphthone B.P. per cc. in 4 oz. bottles
Kapilin is also available in tablet and ampoule forms.

Administration of 'Kapilin' Liquid to the mother, 4 to 12 hours before anticipated birth of her infant, is such a simple and effective safeguard against neo-natal haemorrhage that its routine use is well merited. Exerting the full action of natural vitamin K, 'Kapilin' raises the blood prothrombin level in the newborn baby, and thus gives positive protection against haemorrhagic disease.

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D widening scope of VITAMIN D

New uses for vitamin D in massive dosage give added interest to the clinical interest in Ostelin Forte (pure crystalline vitamin D). Apart from its outstanding success in lupus vulgaris, Ostelin Forte has shown encouraging promise in the treatment of other tubercular conditions such as cervical adenitis and bone disease. There is also evidence that the preparation is of value in cystic acne and psoriasis. Ostelin Forte Tablets provide an effective means of massive oral administration of vitamin D. Each tablet contains 50,000 i.u. of vitamin D (1.25 mg. calciferol). For massive therapy by the intramuscular route, Ostelin Forte ampoules are available, containing 600,000 i.u. of vitamin D (15 mg. calciferol) per cc.



Tablets in bottles of 25 and 100 Ampoules, 6 x 1 cc.

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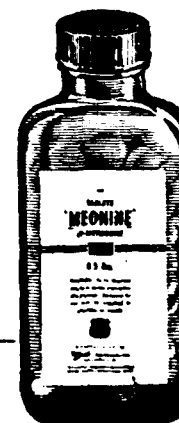
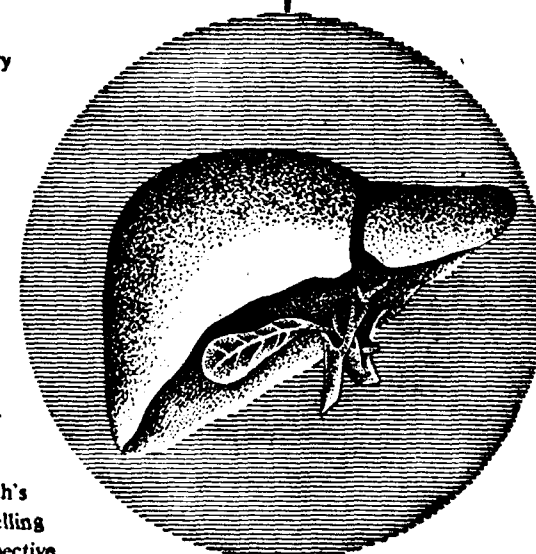
When the Liver

is Threatened . . .

Cirrhosis of the liver used generally to prove fatal. But it is now known that a low fat, high protein-B Complex diet containing rich amounts of methionine will protect and restore normal hepatic function.

However, in order to supply adequate methionine, two gallons of milk or two dozen eggs or two to three pounds of red meat would have to be ingested daily. Moreover, few seriously ill patients are able to eat such large amounts of protein food.

Instead, correct doses of Wyeth's 'Meonine' are capable of dispelling fat from the liver cells, irrespective of the quantities of food ingested.



Prescribe
'MEONINE'
TRADE di-methionine MARK

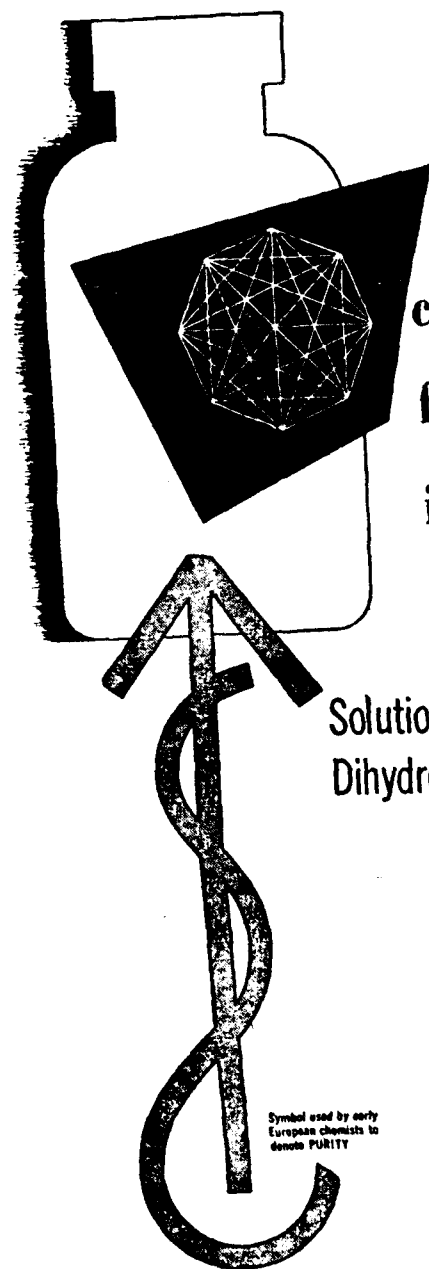


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crystallized
for greater **PURITY...**

in solution

for greater **CONVENIENCE**

Solution of Crystalline
Dihydrostreptomycin Sulfate of Merck & Co., Inc.

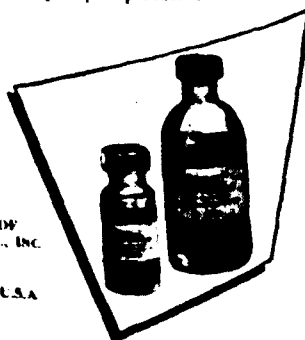
Purified by crystallization, this new streptomycin product ensures unsurpassed protection from the ill effects which may be caused by allergenic and toxic impurities. Safety is further enhanced by the fresh, unopened vial from which each dose is drawn directly. No shaking, no special preparation is necessary—the solution is always ready for immediate administration. Solution of Crystalline Dihydrostreptomycin Sulfate of Merck & Co., Inc. does not require refrigeration. It is unaffected by freezing temperatures. It is clear and colorless, and offers exceptional uniformity. Greater purity, greater convenience, and greater safety make this new streptomycin product a distinct advance in antibiotic therapy.

Available in small vials for
greater convenience in handling
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1 Gram vials (2 cc.)—500 mg. per cc.
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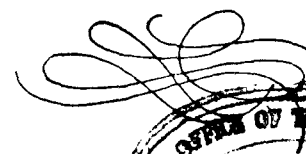
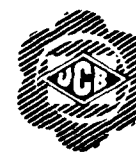
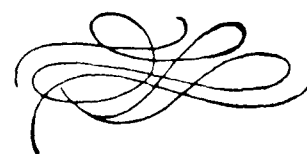
Symbol used by early
European chemists to
denote PURITY

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(Sodium Paraamino Salicylate)

The introduction of AMINOPAR manufactured by the world renowned Union Chimique Belge ensures the supply of a product which is guaranteed to be of the finest possible quality at the minimum rate.

GRANULES

66% P.A.S. Chocolate brown. In tins of 100 gms.

TABLETS

0.5 gm. Chocolate brown. Bots. of 1000 and 100 tablets.

TIOCARONE

(Thiosemicarbazone)

Limited supplies in the following packing are available:

Bottles of 1000 tablets.

Bottles of 150 tablets.

Is a recently developed synthetic product known chemically as Para-acetylaminobenzaldehyde Thiosemicarbazone. It shows a powerful action against Koch's bacillus both in vivo and in vitro, and clinical results obtained with it are most promising. TIOCARONE can be used in conjunction with Dihydrostreptomycin or P.A.S., and it is reported that this association improves the activity of each drug separately.

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To relieve congestion
and inflammation

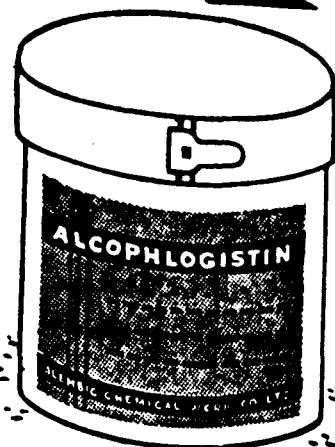
Alembic

ALCOPHLOGISTIN

PROVIDES CONTINUOUS MOIST HEAT

USEFUL IN:

**PNEUMONIA & PLEURISY
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SWOLLEN JOINTS &
RHEUMATISM
ADENITIS & SPRAINS
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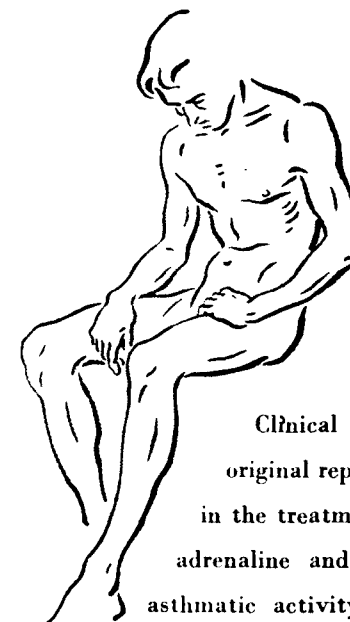


Tins of 5 ozs; 10½ ozs;
20 ozs; 2½ lbs; and 5 lbs.

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AL-884

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TREATMENT
FOR ASTHMA**



Clinical experience has amply confirmed original reports on the value of 'Neo-Epinine' in the treatment of bronchial asthma. Equal to adrenaline and superior to ephedrine in anti-asthmatic activity, it is relatively free from the undesirable side-effects of both these drugs. 'Neo-Epinine' is administered simply, either sublingually or by oral inhalation, thereby avoiding the necessity for injection. Issued for sublingual administration as compressed products, each containing 20 mgm., in bottles of 25 and 100; as No. 1 Spray Solution in bottles of 10 c.c.; and as No. 2 Compound Spray Solution, also in bottles of 10 c.c.



'NEO-EPININE'

ISOPRENALINE SULPHATE



MADE BY THE WELLCOME FOUNDATION LTD., LONDON
SUPPLIED BY

BURROUGHS WELLCOME & CO. (INDIA) LTD., BOMBAY



Eijkman (1890) noted the analogy between the star-gazing position of Pigeons fed on polished rice and symptoms of human beriberi. This pioneer observation induced research on Vitamin B₁, which culminated in its synthesis in 1935.

T.C.F.
THIADOXINE
VITAMIN B₁

Photometrically Standardised.
 For Intramuscular Injection.

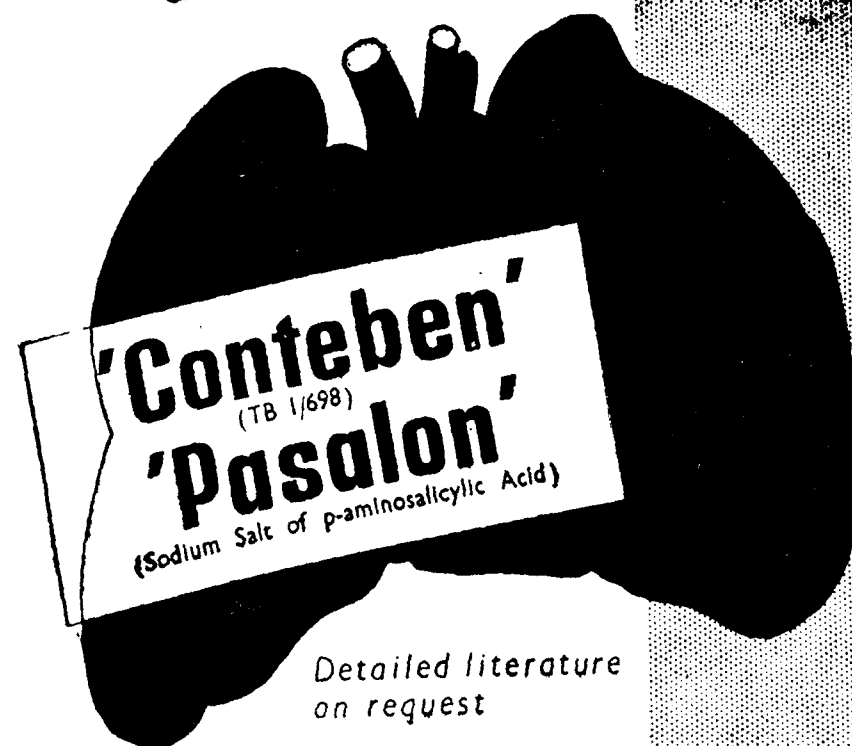
Each c.c. contains 100 mgs. thiamine hydrochloride and 2 mgs. pyridoxine. The inclusion of pyridoxine helps to prevent any possible imbalance of vitamins.

Available in rubber capped vials of 10 c.c.

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 of **TUBERCULOSIS**



'Conteben'
 (TB 1/698)
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 (Sodium Salt of p-aminosalicylic Acid)

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NERVOUSNESS — GIDDINESS — APATHY — LOSS OF WEIGHT

LOSS OF LIBIDO — INSOMNIA — INTERMITTENT CLAUDICATION

HYPERTENSION — ACROMEGALOID CHANGES

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(Testosterone Propionate) by injection

NEO-HOMBREOL 'M'

(Methyltestosterone) Sublabial Tablets



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HEPAFOLIN

for combating
ANAEMIA

COMPOSITION:

EACH cc. OF HEPAFOLIN

CONTAINS:

VITAMIN B₁₂ ... 10 Mcg.

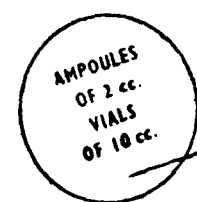
FOLIC ACID ... 5 MG.

PROTEOLYSED WHOLE

LIVER EXTRACT

EQUIVALENT TO

FRESH LIVER 500 Gms.

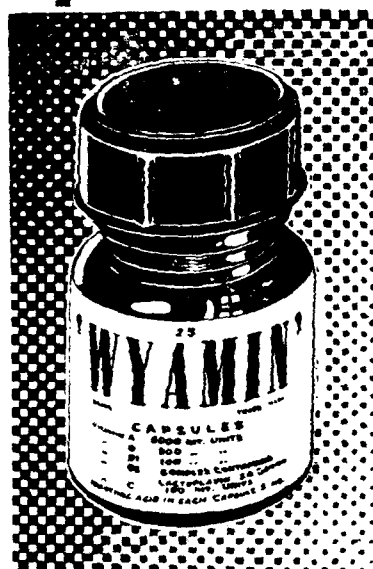


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**Abnormal requirements
Inadequate diets
more often than not
result in vitamin deficiencies**



The diet of the pregnant woman, lactating mother, growing child, hyperthyroid individual, or the patient with a wasting disease, may not meet requirements. Intake must equal output to prevent vitamin deficiency. Multi-vitamin therapy is, therefore, indicated. But even when requirements are normal, today's diets often result in an inadequate intake of essential nutrients.

'Wyamin' supplies an effective quantity of six different vitamin factors. It is, therefore, indicated to replace abnormal nutritional requirements and supplement inadequate diets.

'WYAMIN'
TRADE MARK
MULTI-VITAMIN CAPSULES



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Two antihistaminics of
established value

Antistine Pyribenzamine

Wide experience has shown that patients suffering from the same allergic disease do not always respond equally well to the same antihistaminic drug. Occasionally, a particular patient may fail to derive benefit from a preparation which is normally effective. In such cases the administration of another drug from the group of histamine antagonists frequently produces the desired result.

Indications: Urticaria, Vasomotor rhinitis, Pruritus, Serum sickness, Anaphylactic shock, Hypersensitivity to drugs, Allergic asthma, etc.

A new medical approach
to nasal decongestion...

Antistine-Privine Nebulizer

Contains 1:200 Antistine and 1:4000 Privine in aqueous isotonic solution. This new synergistic combination thus contains the effective antihistaminic, Antistine, to control allergic reactions, and the potent vasoconstrictor, Privine, to shrink the nasal mucosa or for decongestion of the conjunctiva.

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the threefold tonic — for children everywhere



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The problem of the rundown, debilitated child is shared by medical men throughout the world... and the universal answer is a tonic, at once formative, restorative and protective.

Syrup Minadex is such a tonic, combining in its formula three distinct therapeutic groups. One group consists of iron, copper and manganese, included for their haemopoietic properties. The second comprises the glycerophosphates of calcium, sodium and potassium—traditional nerve restoratives. And the third group—vitamins A and D—furnishes the nutritional 'background' to promote the growth of healthy tissues and, in convalescence, to speed the return to full health. These ingredients are combined in a delicious orange-flavoured syrup, making Minadex acceptable to even the most fastidious palate in the warmest climate.



Mineral - Vitamin Tonic

GLAXO LABORATORIES (INDIA) LTD.
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L.A.S. (18)

Adexolin attacks the



BACKGROUND

of illness

In strengthening the body's resistance to infection, the value of vitamins A and D is well established; but Adexolin—the Glaxo preparation of these vitamins in high concentration—is also a powerful aid to restoration of health after sickness, attacking the 'background of disease' through the natural mechanisms. For your adult patients you can advise the popular protective routine: 'one Adexolin capsule daily'; for the infant and child, Adexolin liquid is the preparation of choice, each drop supplying a balanced and standardised amount of the essential vitamins A and D.

CAPSULES: Bottles of 25 or 100.
Tins of 1,000.LIQUID: Bottles of
14 cc. and 2 oz.

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L.A.S. (19)



WHAT YOUR FOOT IS ABOUT...

'Tineafax' brand preparations contain *undecylenic acid*—a new, specific antifungal agent of proved effectiveness in "athlete's foot" and similar dermatophytoses.

'Tineafax' brand Ointment is intended for the treatment of established infection; 'Tineafax' brand Powder as an adjunct to the Ointment and for prophylactic use. Both products are clean and pleasant to use, non-staining and free from objectionable odour. The Ointment is issued in collapsible tubes of 1 oz. (approx.); the Powder in tins of 2 oz.

the answer is 'TINEAFAX'

COMPOUND UNDECYLENATE OINTMENT AND UNDECYLENATE POWDER

MADE BY THE WELLCOME FOUNDATION LTD., LONDON
BURROUGHS WELLCOME & CO. (INDIA) LTD.
BOMBAY

SUPPLIED BY



Compact, and easily assembled or dismantled, Type MX 2 has the power for a remarkably wide range of radiographic procedures.

The rating is 80 kVp. at 15mA; it has a generous screening rating, kilovoltage and milliamperage controls, and a 12 second timeswitch.

Manufactured by Watson & Sons (Electro-Medical) Ltd., LONDON

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Special Number on "Modern Therapy"

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CURRENT THERAPEUTICS IN DISEASES OF THE EAR, NOSE AND THROAT

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OTOLARYNGOLOGY has made great advances during recent years. Many new surgical techniques have been evolved. New diagnostic instruments have been developed. The science of Broncho-oesophagology has reached a high standard and with the modern hearing aids and the fenestration operation, the hearing of severely deafened people can now be restored to a useful level. Advances in endocrines, vitamins, blood chemistry etc., and the advent of new drugs chemotherapeutic agents and antibiotics have left their imprint, upon this speciality. The modern concepts of nasal physiology and the influence of nasal allergy in nasal manifestations have caused the replacement of many intra-nasal procedures by intelligent conservative management.

Accurate diagnosis is the basis of all sound treatment. No elaborate equipment or apparatus is needed for the diagnosis and treatment of many conditions. A large proportion of diseases can be diagnosed correctly on the basis of a careful history and an interpretation of the symptoms alone.

In ear, nose and throat practice, the tendency is to bestow more and more attention to local treatment. Many local manifestations of chronic infections such as syphilis or tubercle or of general disorders such as cardiac, renal or hepatic disease chiefly depend for their relief on the recognition and treatment of systemic disorders.

The general treatment of the patient as a whole should never be over-looked. Age, sex, occupation, general health environment, food, clothing, habits etc., of the patient should be thoroughly investigated. Psychosomatic factors should receive due consideration in the treatment of disease.

Chemotherapy and antibiotics.—With the advent of sulphonamides and antibiotics a whole group of infections has come under reasonable control. Of these, antibiotics are more advantageous on account of their comparative safety and the absence of toxicity particularly in extremely ill or debilitated patients and in the presence of liver and kidney damage. Of the various sulphonamides now available, sulphadiazine is the one most often used and of the various antibiotics which have been discovered, Penicillin, Streptomycin, Aureomycin, Chloromycetin and Terramycin have established themselves. Tyrothricin is of some value for local application. The methods for their administration are many and varied. Aerosolization, nasal inhalation and instillation, lozenges, ointments and drops are some of the methods of local administration of these drugs. In general, it is dangerous to rely upon local medication alone in the treatment of severe infections.

These, although capable of almost unbelievable good are not without their dangers and are bringing new problems into the practice of medicine. They are not a cure-all but are effective only when used against sensitive micro-organisms. Inadequate and indiscriminate therapy leads to the development of resistant strains of bacteria and the masking of symptoms. This is dangerous particularly in acute middle ear and mastoid disease as they lead to symptomless complications. So, it is better for us to err on the side of giving larger doses than may be deemed necessary rather than run the risk of complications or failure to cure which may follow small doses. In spite of the multiplicity of toxic reactions reported on the use of sulphonamides, it should be remembered that these are extremely rare. Even these can be overcome very easily if the patient is kept under constant observation with a high fluid intake. The main essential for treatment with these drugs is the maintenance of a constant blood concentration and this can be attained only by frequent and regular administration. Sulphonamides are usually given by mouth and an average of one gramme every four hours after an initial high dosage has been found effective in most ordinary infections by sensitive organisms. Penicillin is given commonly by three hourly injections but there is a growing tendency to reduce the number of injections at the expense of greater concentrations and by the use of slowly absorbed preparations. In otolaryngological practice, streptomycin is of great value in the treatment of tuberculous mucous membrane lesions. In addition I have used streptomycin in rhinoscleroma and ozena with very gratifying results. Aureomycin and

Chloromycetin have a wider range of activity than any other antibiotic known and bacteria seldom acquire any resistance to them; nor do they give rise to any serious toxic effects. However, unless the organisms are resistant, Penicillin and Sulphonamides are still preferred on the score of economy. In serious and severe infections these drugs should be given in combination.

The vast majority of patients with acute suppurative otitis media and mastoiditis, furunculosis of the ear, acute sinusitis, tonsillitis etc., will respond promptly and effectively to these drugs. They are very valuable in the prophylaxis and treatment of various complications of throat, nose and ear infections amongst which otogenic meningitis and osteomyelitis of the nasal sinus origin are outstanding. It must be stated however, that the maximum effectiveness can be achieved only in conjunction with adequate surgical measures. They do not permit the violation of sound principles of surgery.

Allergy.—In the etiology of many diseases allergy is considered to be an important factor. Manifestations of allergy may give rise to symptoms referable to the ear, nose or throat. The number of patients seeking relief from allergic symptoms is very large. It may be for vertigo which may or may not take the form of true migraine or of the histamine cephalalgia or vasomotor rhinitis or cephalgic myalgia.

Theoretically, the therapy of allergy is quite simple. One has to find out the offending agents causing allergy and eliminate them or desensitize the patient with them. In practice specific desensitization is a complex procedure and in spite of the best efforts involving time and patience, it is not possible in most cases to spot the offending agent. The treatment of these conditions is now comparatively simplified, though the relief obtained is not always complete. Experimental and clinical observations have led to the assumption that allergy is caused by the release into the system of histamine which exists preformed in the tissue cells as one of their normal constituents. On this basis, the treatment of allergy consists in inducing tolerance to Histamine, i.e., desensitization with histamine. This is carried out either with histamine acid phosphate or histamine azoprotein which consists of histamine combined with a protein to enhance its antigenic properties and which should be preferred when available to histamine acid phosphate.

Demonstrable pathological conditions in the ear, nose and throat should be treated by the routine methods and histamine desensitization should thereafter begin. Various dosage schedules have been recommended. With histamine acid phosphate, I use either a rapid or a slow method of desensitization. One mg. of histamine acid phosphate is dissolved in 100 c.c. of double distilled water. Treatment begins with a subcutaneous injection of 0.1 c.c. of this solution which is increased by 0.1 c.c. every day till 1 c.c. is reached. Then

maintaining the dose at 1 c.c., the interval is prolonged with each succeeding injection by one day. The treatment is carried out for about four weeks. Rapid method of desensitization consists in giving intravenously 250 c.c. of normal saline in which 1 mg. of histamine acid phosphate is dissolved. The rate of flow should be 60 drops per minute. Five injections are given on five consecutive days. The number may be increased or decreased according to the condition of the patient. The slow method gives better results in chronic cases, whereas the rapid method is more useful in acute cases.

With histamine azoprotein, the treatment is started with a subcutaneous injection of 0.01 c.c. The subsequent injections are increased by 0.01 c.c. and are given every third day until a dosage of 1 c.c. is reached. After that level, the interval is prolonged every time by one day between injections till the interval between two injections is one week. This is followed by maintenance doses of 0.5 c.c. weekly, for eight weeks. In a few patients maintenance doses may have to be continued for a longer time.

I have used this form of therapy in various allergic manifestations with results superior to all other forms of therapy so far used. No untoward reactions have been met with but it is advisable to keep the patient under observation for about 15 minutes after each injection. Adrenalin should be ready at hand for use if necessary. Whenever a reaction occurs, the dosage should be reduced and gradually stepped up again.

Another important and recent advance in the treatment of allergy has been the introduction of anti-histamine drugs. The mode of action of these compounds is unsettled at present. Clinically they block or prevent the effects of histamine. They do not effect a cure or lasting improvement but afford palliation in allergic conditions, better than any other known drugs. Many varieties have been put on the market but there is no definite information regarding the relative merits of the various drugs.

The studies made with ACTH and Cortisone on allergic diseases of the respiratory tract have yielded very encouraging results and in future they may alter many of the therapeutic procedures now adopted for the treatment of allergy and its complications.

Infections of the ear.—*External otitis*.—This condition is often a bacterial and not a fungus infection and is caused primarily by gram-negative bacteria, particularly *Pseudomonas aeruginosa*. Thorough cleaning of the ear canal, is the most important part of the treatment of this condition. Unfortunately there is no one drug which is useful in all cases. Sulphonamide powder, Cresatin Iso-par, Sulphomylon with Streptomycin, Dalyde, Furacin, Aureomycin are a few of the popular drugs now being advocated for the treatment of infections of the external ear. Of these, Cresatin is the one most favoured in fungus infections. A thin film of Sulpho-

namide powder is very useful in ulcerative conditions. Aureomycin is the drug of choice in treating *Ps. aeruginosa* infections. In local treatment it is best used as a powder administered after cleaning the ear canal. If oedema is present the initial manipulations are limited, a wick is inserted for 24 hours and saturated with one per cent aluminium acetate solution or 10 per cent ichthyol in glycerine. For the relief of pain and discomfort it may be necessary to prescribe sedatives. Systemic administration of antibiotics or sulphonamides is necessary when secondary infection and invasion have occurred.

Acute otitis media.—The management of acute otitis media varies according to whether the tympanic membrane is still intact or is already perforated and discharging. If the patient is seen before the drum is ruptured, there should be no hesitation to a myringotomy if the membrane is bulging, because spontaneous perforations have a tendency to remain permanent. Penicillin and Sulphonamides in adequate doses have reduced the mortality from acute suppurative otitis media and its complications to a negligible figure. Early administration of these drugs is very important. The treatment after discharge starts, either as a result of myringotomy or spontaneous rupture, consists in the main, in keeping the middle ear free from discharge. This can be achieved by frequent cleaning, either with cotton wool pledgets or by syringing. This should be followed by drops or powders. Antibiotics and sulphonamides are chiefly used now-a-days as drops and powders for use in ear infections. The patient or the attendant should be instructed to change the cotton wool as often as necessary. When drops are used a convenient way of keeping the solutions in the ear is to close the opening of the external acoustic meatus with cotton wool impregnated with vaseline. This prevents absorption of the solution by the cotton. Treatment should be continued till the discharge stops and the function returns to normal, which takes about two or three weeks. If in spite of the treatment, discharge persists or when deafness is marked search should be made for the factors responsible and suitable therapy instituted. It may require an opening of a diseased mastoid, removal of adenoids, treatment of sinusitis etc.

Chronic suppurative otitis media.—Modern methods of treatment of chronic suppurative otitis media have made possible a striking improvement in the results. Generally speaking, conservative treatment efficiently carried out will clear up the condition in a large percentage of cases. In other cases complicated with cholesteatoma, granulations or polypi an operation and a few weeks of pains taking post-operative treatment will stop the foul-smelling and offensive discharge.

Conservative treatment consists mainly in cleaning the middle ear carefully and completely of all the discharge and sterilising the middle-ear cavity. This can be achieved by the use of either drops

or powders. In cases where there is a large perforation associated with scanty discharge, treatment with powders is often efficacious. After cleaning the middle ear sufficient powder is insufflated to form a thin film over the walls of the middle ear. Iodised boric powder, sulphathiazole powder, Penicillin-sulphathiazole powder, Penicillin powder are some of the powders which have been recommended. I have used Penicillin-sulphathiazole powder in many cases with gratifying results.

Where the discharge is profuse and the perforation small, the use of drops is to be preferred. Various antibiotics and sulphonamides in solution have been recommended but the results obtained by their use alone is not very encouraging. We have used boric acid in rectified spirit, 10 grains to an ounce, with equally good results. Here again the patient or the attendant should be instructed to change the cotton wool as often as necessary.

Another conservative method, which is less time-consuming, is zinc ionisation which is suitable when the sepsis is confined to the middle ear and does not involve antrum or attic and when the perforation is large enough to allow the zinc solution to enter the middle ear. The principle of treatment is to liberate zinc-ions which act as germicides and destroy the bacteria. Once the infecting agents are eliminated the discharge subsides.

When suppuration ceases leaving a dry perforation, recurrences must be prevented by attention to any septic focus in the nose and throat. This may require drainage of an infected maxillary antrum or removal of an adenoid mass. The patient should be instructed to keep the ear protected so as not to allow even water while bathing to enter the meatus.

Meniere's disease is characterized by repeated attacks of labyrinthine vertigo, reduced hearing and tinnitus. The cause is not definitely known. It has been ascribed to various disturbances or deficiencies, infections or allergy. Consequently many methods of treatment have been suggested. In the majority of cases, conservative treatment controls the disease. Surgery of Meniere's disease is still developing. All procedures aim at destroying the function of the labyrinth and so this should be considered only after all conservative methods have failed. Medical treatment during an attack is mostly symptomatic and consists in giving sedatives, confining the patient to bed in a dark room and inflation of the Eustachian tube. During the interval, a combination of various methods of treatment may be used. Salt-free diet combined with limitation of fluids has offered more relief than any other form of treatment. As regards medication, six 7½ grain capsules of ammonium chloride are given with meals. This may be continued for a fairly long period without ill effects.

Miles Atkinson has emphasized the vascular theory of the causation of the disease. He divides cases into a primary vaso-

dilator group and a primary vasoconstrictor group, distinguishing the groups by a histamine skin test. The primary vasodilator cases are treated by histamine desensitization and the primary vasoconstrictor ones by administering nicotinic acid by mouth or by injection, 100 mg. three times a day being used as an average starting dose. He is of the opinion that the disease is a generalised nutritional one, probably due to vitamin deficiency especially of the B components. A deficiency of Niacin is indicated in the vasoconstrictor and of riboflavin in the vasodilator disturbances, whereas thiamin plays a general role in determining nerve integrity. Large daily doses of riboflavin, thiamin, and ascorbic acid are given for long periods. The results of this treatment according to him are most encouraging.

Deafness.—Early recognition of this disability, particularly in children is very essential and is the responsibility of the parents and the family physician, for the neglected remedial deafness of to-day may be the permanent disability of tomorrow.

Much of the impaired hearing in children is due to the presence of abnormal lymphoid tissue in the nasopharynx. It is usually impossible to remove the lymphoid tissue completely by operation and nodules of lymphoid tissue in or about the Eustachian orifices which become infected, will cause mechanical blocking and overproduction of mucus. This leads to impaired hearing. Fortunately lymphoid tissue is extremely sensitive to radium and so it is advantageous to supplement adenoidectomy with irradiation in selected cases.

Fenestration for otosclerosis has now been established. The operation does not cure the disease but it is the only means available apart from hearing-aids, of relieving deafness. Very good results have been claimed in typical cases with stapes fixation in young patients and with no evidence of middle ear disease or nerve deafness.

The modern hearing-aid has improved greatly in recent years and will probably be a still better instrument in the near future. It is able to help many cases of deafness. The use of an hearing-aid is an acquired facility and patients will therefore need training and encouragement to ensure that they persist in using the aids until they get full benefit from their use.

In the case of advanced nerve deafness, any method of surgical or medical treatment is useless. Recent advances in aural rehabilitation offers the only practical method of management of these patients.

Common cold.—Common cold is a mild illness but it has serious aspects. Extension of the inflammation to the nasal accessory sinuses, lower respiratory tract and to the middle ear is fairly common. It is generally accepted that the condition is infectious and the

primary cause is a filterable virus. This is followed by secondary bacterial infection which is generally considered to be largely responsible for the complications of this disease. The virus has not been cultivated and so there is no hope yet of successfully immunising or vaccinating against the disease. Whether however, autogenous and stock bacterial vaccines are of value or not in immunising against the secondary bacterial infection is a subject of importance concerning which there seems to be difference of opinion. Sulphonamides and antibiotics are ineffective against the virus, although they are effective in the treatment of the secondary bacterial infections. No drug available at present can be relied upon to prevent or cure the common cold. Modern treatment consists mainly in relieving the symptoms as they arise. Rest in bed diminishes the severity of the symptoms, limits its spread and reduces the frequency of complications. Relief of headache, fever, and muscle pains can be obtained by the use of Aspirin. The use of nose drops and inhalations, rank first amongst the measures to relieve the cold and the nasal vasoconstrictors are the most widely-used drugs. The synthetic products provide a greater degree of vasoconstriction and a more prolonged effect than ephedrine but their excessive use finally gives little or no relief due to hypertrophy of the mucous membrane. So, the drug of choice for prolonged use is Ephedrine in the form of a solution containing, 2 grs. of ephedrine, 20 grs. of sodium chloride, 1 gr. of potassium chloride, 1 gr. of dextrose, 60 grs. of sodium bicarbonate in one ounce of distilled water.

Recurrent colds can be prevented by : (1) Avoiding direct infections ; (2) removal of septic foci in the upper respiratory tract ; and (3) by general measures, such as, good diet, fresh air etc.

Anti-histamine substances are of little or no use of in the treatment of the common cold.

Sinusitis.—In general, the treatment of acute sinusitis is predominantly medical and that of chronic sinusitis predominantly surgical. Chemotherapy and antibiotic medication are very efficacious in the control of sinus infection. In acute sinusitis as little surgical intervention as possible should be employed. Timely chemotherapy cures an acute attack. Failure is often due to delay or inadequate use of specific drugs. In addition, such factors as abnormal anatomy, drainage, immunity, metabolic and endocrine deficiencies, allergy, nutrition etc., should receive due consideration and treatment.

Chronic sinusitis.—Chronic sinus infections are less responsive to chemotherapy and biotherapy, because these drugs cannot penetrate into diseased tissue. The tissue which is diseased beyond recovery must be removed by surgery and as an adjunct to this procedure, these drugs play a decisive role. There is still difference of opinion as to the value of local use of Penicillin particularly in subacute cases. I have used Penicillin locally in the maxillary sinusitis of recent onset, where the mucosa did not show any marked

change radiologically. An ureteric catheter was introduced through the antrum and left in situ. This has certainly reduced the number of punctures and the number of patients operated on and therefore, deserves to be tried in cases where there are no marked changes in the mucous membrane as revealed by radiography.

Atrophic rhinitis.—One of the recent introductions in the treatment of ozena is the oestrogenic group of substances. After nasal toilet, oestrogen in oil is applied to the mucous membrane. The most useful solution is one containing 5 mg. of synthetic oestrin in 1 c.c. of oil. About $\frac{1}{2}$ c.c. of this is sprayed into each nostril with a nasal atomizer. The treatment should be continued daily for about a week and then gradually lengthened, as improvement is noted until finally once in two weeks is found sufficient to keep the patient in comfort. Permanent atrophic changes are unaffected, but in early cases the mucosa becomes moist and covered by a natural secretion; and the tendency to crusting and fetor disappears.

Because the condition is always associated with a gram-negative bacillus streptomycin was used in the treatment of this condition and the results were very gratifying. After nasal toilet, the nasal cavity is sprayed at intervals of three hours during day time with a solution containing 1 gm. of streptomycin in 20 c.c. of normal saline. In addition, streptomycin $\frac{1}{2}$ gm. twice a day was given for thirty days. The end results of this treatment as a whole appeared to be better than those noted with other conservative medical measures.

Anti-reticular cytotoxic serum is another agent for clinical use in many pathological conditions including atrophic rhinitis, and there have been some reports recently on its use.

Scleroma.—In the past, treatment with radium has usually given some relief. Now streptomycin appears to be the most promising remedy, the duration of treatment depending upon the extent of the disease. Large quantities may have to be given; one of my patients required 63 gms. before there was marked improvement in breathing.

Infections of the throat.—Acute inflammatory conditions of the tonsils, pharynx and larynx can be successfully treated with sulphonamides and antibiotics. Medicated lozenges which are very popular in the treatment of diseases of the throat are not of much value except in most superficial oropharyngeal infections. Reliance should be placed chiefly on chemotherapy and antibiotics given in suitable doses over an adequate period. Their promiscuous use in trivial infections is unwarranted and dangerous.

Vincent's angina.—The treatment of Vincent's angina by Penicillin both locally and systemically is an outstanding advance in the therapy of this condition.

Peri-tonsillar abscess.—Antibiotics or sulphonamides, if used early might prevent abscess formation and the need for subsequent incision and drainage. When once the abscess forms, which usually happens, on the third or fourth day of the disease, it should be treated by incision and drainage. Spontaneous rupture occurs in most cases, only after a week or so and waiting for it entails needless suffering for the patient and possible serious complications like hæmorrhage, mediastinitis etc.

New drugs in the treatment of hæmorrhage.—For packing the nose, it is far more advantageous to use gelatine sponge and oxidised cellulose in the treatment of epistaxis than the usual gauze packing. This packing does not require to be removed as it is either absorbed or is blown out by the patient. This obviates the possibility of fresh nasal hæmorrhage which frequently occurs with the removal of the usual packing and also avoids causing discomfort to the patient.

Another most important step in solving the problem of hæmostasis is the discovery and development of thrombin. It is a very useful drug in producing and maintaining stasis of capillary bleeding.

Tuberculosis in otolaryngology.—Various therapies have been suggested. Streptomycin is one of the most valuable drugs for the treatment of tuberculosis. Otitis media and mastoiditis respond favourably. Tuberculous laryngitis and ulcerating areas in the trachea and bronchi are easily cured by the local and systemic use of streptomycin.

Endoscopy.—Aside from the well known procedure for the removal of foreign bodies, endoscopy has come to play an important role in the diagnosis and treatment of diseases of the chest. Many suppurative conditions of the lungs respond very favourably to bronchoscopic and medical management. In cases of bronchiectasis and lung abscess the instillation of Penicillin after aspiration of the purulent material, through the bronchoscope, is followed by very marked improvement.

The foregoing is necessarily only a brief account of the recent advances in the treatment of some of the more important otolaryngological conditions met with in daily practice.

Maharajpet P.O.,
Visakhapatnam.

Treatment of Chancroid with Streptomycin

Good results are reported in the treatment of all stages of chancroid with 4 to 6 grammes of streptomycin in doses of 0.5 g. twice a day, with no other medication. Check examinations showed that Ducrey's bacillus disappeared in 3 to 6 hours.—(*Arch. Derm. Syphil.*, Paris, 10, 541-542, 1950).

MODERN THERAPY IN OPHTHALMIC DISEASES

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In this article, I propose to deal with the modern treatment of some ophthalmic diseases, with particular reference to:—

- (1) Tissue therapy in ocular diseases.
- (2) Value of riboflavin in trachomatous pannus and phlyctenular conjunctivitis.
- (3) Streptomycin in ocular tuberculosis.

These conditions did not react satisfactorily five years ago to the methods of treatment till then in vogue. The outlook has however greatly altered since, owing to the advent of antibiotic and tissue therapy.

I demonstrated before the All India Ophthalmological Conference in March 1950 at Lucknow, a case of retinitis pigmentosa treated by placental graft and injections (details appeared in my previous article in the *ANTISEPTIC* for Dec. 1950). Since then, we have tried the drug in more than 50 different conditions, e.g., high myopia with choroido-retinal changes, early optic atrophy of unknown ætiology, old corneal opacities and retinitis pigmentosa. This therapy was found to be definitely of value. We are now trying the value of other tissues, like skin and we hope later on, to try brain, spleen and liver also. We have also been trying Cod liver oil (as it contains products of disintegration of hepatic tissue) in cases of old corneal opacities but the results have not so far been very encouraging.

There is no doubt that Riboflavin is of great value in phlyctenular conjunctivitis and trachomatous pannus. In a paper read by me in March 1951 before the All-India Ophthalmic Conference held at Calcutta, reference was made to more than 100 cases, which were successfully treated with Riboflavin. It is on account of the anti-allergic property of vitamin B₂, that good results were obtained. It acts indeed very much better in children between 3-10 years with phlyctenular conjunctivitis, the lesions healing in 5 or 6 days. Quick results are obtained in cases that develop the ailment for the first time with no other complications.

It allays pain and reduces lacrymation, and congestion much more quickly.

Healing takes a longer time in old chronic cases.

Excellent results are obtained when local and intramuscular injections are given simultaneously.

Riboflavin helps in the rapid disappearance of pannus and lessens the vascularization by improving the oxidation system of the cornea.

Streptomycin was tried in ocular infections mainly of tubercular origin by :—(1) Instillation of drops of streptomycin; and (2) intra-muscular injections.

In these cases, the following examinations were carried out before commencing treatment :—(1) Systemic examination, including screening and X-ray examination when necessary; (2) tuberculin test; (3) conjunctival smear examination; and (4) cultural tests.

Diseases treated.—(1) *Acute conjunctivitis* :—12 cases.

Most of the cases were of the muco-purulent or purulent variety. The pathogenic organisms being gram negative (in most cases) and gram positive bacilli and cocci. Drops were largely used and the results were uniformly good.

(2) *Phlyctenular kerato-conjunctivitis* :—9 cases.

Almost all the cases showed evidence extra-pulmonary tuberculosis with marked malnutrition. Mantoux test was strongly positive in all the cases.

(3) *Chronic conjunctivitis* :—6 cases.

Cases selected were those who had routine treatment for conjunctivitis and were non-trachomatous. The causative organism in some was a gram negative organism, while in others the causative organism could not be isolated. Marked relief was still obtained with streptomycin. The failure to detect bacteria in some cases was probably due to the fact that the routine culture media were unsuitable.

(4) *Hypopyon ulcer* :—3 cases.

The cases were of long standing with frequent relapses. One of these had tuberculosis of the hip.

(5) *Corneal ulcers* :—2 cases.

Cases treated showed gram negative bacilli in conjunctival smears.

(6) *Keratitis and iritis* :—3 cases.

These were in the acute stage, with deep vascularization and conjunctival congestion. The conjunctival flora comprised some gram negative and a few gram positive organisms.

(7) *Disciform keratitis* :—One case.

The patient was first treated with Dionine and sub-conjunctival saline injections, as well as by other general measures, with no relief. After a course of streptomycin by the intramuscular route, the opacity lessened in size as well as in density; the vision also greatly improved.

(8) *Acute scleritis* :—One case.

Streptomycin was started taking it to be tubercular. There was no improvement. The W.R. and Kahn's tests were later found to be positive. Streptomycin treatment was stopped.

(9) *Tuberculous osteomyelitis of orbit* :—One case.

The cystic swelling which the patient had was excised, but a sinus persisted. She also developed lymphadenitis of the neck. Two courses of streptomycin were given. The sinus healed and the lymphadenitis was much improved.

(10) *Tuberculous dacryocystitis* :—One case.

A case of chronic dacryocystitis with involvement of the bones underneath. The patient also had lymphadenitis of the neck and her general nutritional level was very poor.

(11) *Chronic uveitis* :—One case.

The patient had markedly diminished vision of a rather sudden onset. Mantoux test was strongly positive. Streptomycin by the intramuscular route effected marked improvement in vision.

Further work on the therapeutic use and value of streptomycin in different conditions and administered by different routes, has been planned as also important animal experiments alongside; the results of these studies will be reported in due course.

I am grateful to Shri Keshri Kishore, Pharmaceutical Chemist who has actively assisted me in my research work by preparing placental.

The Development of Children of Eclamptic Mothers

Sierig has made a very interesting follow-up study of 117 Hamburg children born of eclamptic mothers during a 25 year period and found that eclampsia is of greater importance in the future health of the child than is generally realized. Sierig compared and assessed the physical and mental development of the 117 children with that of a group born during the same years after normal pregnancies. In the two groups, the percentage of patients in normal health was 77 and 91; of those suffering chronic ill-health 18 and 7; of those who had died 6 and 1; of mental defectives 9 and 2.5; of those with delayed speech development 14 and 7 respectively, the second figure in each pair of figures referring to the children of normal pregnancies. Under "ill-health" were included bronchial asthma, tuberculosis, and heart and kidney diseases. Complications of infectious diseases were more frequent in the group born of eclamptic mothers. The mortality figures do not include death from prematurity or neonatal death.

All degrees of mental deficiency were noted, including cases of severe hydrocephalus. The adverse effects of eclampsia were even more pronounced when cases were grouped according to the severity of symptoms in the mother. Of 16 children born of severely eclamptic mothers (more than 3 fits.) 4 died under the age of 2. In successive pregnancies a positive correlation was found between the severity of the eclampsia and the degree of maldevelopment of the child. These results are compared with others published recently in the German literature, which correlate well with Sierig's findings.—(*Nervenarzt*, 21, 393-398, 1951, Abst. W.M., Vol. 9, 3, 1951).

TREATMENT OF THE COMMON PYOGENIC INFECTIONS OF THE SKIN

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Pyodermas are very common ailments which our general practitioners are called upon to treat every day. With our high standard of personal cleanliness, the good resistance afforded by our darker skins as a result of constant exposure to the tropical sun, and our spare national costume, one would expect skin infections to be much less in our country. But actually we find that these advantages are set off by our poor general nutrition and the common practice of applying irritant and allergenic vegetable pastes and oils to the common skin diseases, this results in dermatoses of various kinds and the chronic suffering could be traced to the improper treatment adopted for trivial skin affections.

The 'acid mantle' over our bodies has remarkable self-sterilizing powers and affords effective protection against septic infections that may be caused by pyogenic organisms entering the subcutaneous tissues, lymphatics, and the blood stream. The organisms concerned in skin infections are generally staphylococci or/and streptococci. They are not obligatory but generally facultative pathogens and a pyogenic skin lesion results, only when the protective mechanism of the skin at the particular spot has been impaired, or when the organisms have acquired increased virulence; both these factors may operate at the same time at a particular site on the skin. This explains why pyodermas are highly auto-inoculable in the affected person but are not readily communicated to others. In the management of these infections auto-inoculation into new skin areas of the patient should be effectively prevented if the treatment is to be effective. Antiseptic or anti-bacterial agents should be used which cause the least possible damage to the adjacent skin, in other words the medicament should have the maximum parasitotropic action with the least organotropic results. Our aim should be to help or preserve the self-sterilizing mechanism of the skin and not interfere with it by using skin sensitising or allergenic substances.

In treating a case of chronic or recurrent pyogenic skin infection, all systemic and local causes which would lower the natural resistance of the skin to bacterial infection must be eliminated. The systemic, acquired or congenital predisposing causes are: (4) Diabetes; (2) obesity; (3) excessive sweating; (4) pruritus; (5) internal septic foci; and (6) all cachectic states. Local predisposing causes are parasitic infections of the skin, especially pediculosis capitis and scabies, is a very important cause which keeps up the infection and unless the mite is eliminated, all other topical treatment and systemic administration of large doses of antibiotics would fail and

might even be harmful. Similarly the head louse is the starting point of impetigos and should be eliminated, before other treatment is commenced. Other local predisposing causes are dirt and filth, friction from clothing and other skin troubles especially fistulae and sinuses, intertrigo and other forms of dermatitis. In our country which has a large agricultural population working in the fields bare-footed, chronic mycotic infections and various types of contact-dermatitis of a chronic nature are common in the feet and legs. In these cases, once a dermatosis is started, the patient makes it worse by scratching and applying various irritant remedies with the result that the vitality of the skin is reduced and secondary pyogenic infection results. In patients with chronic eczema a superadded and resistant superficial folliculitis is very common in these parts. In a chronic dermatosis with added pyogenic infection the pyoderma should first be got rid off, before the primary skin affection is successfully tackled.

General principles of treatment.—The newly discovered chemotherapeutic agents and antibiotics have revolutionised the treatment of many bacterial and spirochætal systemic infections and are indeed of great assistance in combating skin infections. But in dermatology external applications with the old well-tried remedies such as Potassium permanganate, aluminum acetate, ammoniated mercury, Boric acid, Silver nitrate, Resorcinol, Hydroxy-quinoline and Iodine preparations, Sulphur and the dyes, brilliant-green and gentian-violet continue to hold an honourable place, almost competing with the newer remedies, such as sulphonamides, Penicillin, Streptomycin, Aureomycin and Bacitracin. Pyodermas can even now be treated quite efficiently and scientifically with the time-honoured cheap remedies used in topical therapy, without invoking the aid of the costly antibiotics; this is a very important consideration in a poor country like ours. The chief points that should guide us in evaluating the therapeutic index of the remedies used for pyodermas are:—

(1) High efficacy and a wide spectrum of effectiveness against maximal number of primary causal organisms, mixed infections and secondary invaders. (2) Low allergenic potential to the tissues of the patient and low local toxicity or irritancy. (3) Low systemic toxicity on external application, and not used or essential for internal administration in the treatment of systemic diseases. (4) Stability in suitable vehicles under storage and ordinary atmospheric conditions. (5) Patients should not find them to be messy or to "sting, stink or stain." (6) Low cost, as large quantities are required for repeated and wide-spread external applications. Judged by the above standards, the new remedies are highly efficacious and in the order of merit are Bacitracin, Terramycin, Aureomycin, Penicillin and Streptomycin; but with the exception of Penicillin, the others are all costly. Sulphonamides are cheap but their drawback is their high

skin-allergic potential and they are still used for internal administration. The order of therapeutic index of the older remedies is ammoniated mercury, Burow's solution, Vioform, Sterosan, Potassium permanganas, Resorcinol, Sulphur and Boric acid.

The common pyoderms are:—(1) The impetigos (*Impetigo contagiosa* and *Bockhart*). (2) *Ecthyma*. (3) Superficial folliculitis. (4) Deep folliculitis including *sycosis vulgaris*. (5) Boils. (6) Carbuncles. (7) Sweat gland abscess. Blepharitis and external otitis, though essentially pyoderms will not be dealt with here. Before dealing with the treatment of the individual affections, I wish to emphasise that in the treatment of skin diseases, the physician should closely supervise the treatment, insist on seeing the patient very often and give detailed instructions regarding the patient applications and the precautions to be observed by the patient and his attendants. The importance of keeping the nails short and the fingers away from the lesions, washing the hands before and after each treatment, changing towels, clothes, underwear and sheets once a day, and a regular washing with water and some non-irritating soap should be stressed upon. Detailed written instructions should be given regarding the strength of the lotion, the temperature of water and the time and duration of the application.

Impetigo contagiosa:—This is usually a streptoderma but sometimes staphylococci or both strepto and staphylococci may be found. The common variety found on the face and scalp of children, with thick yellow honey coloured, 'stuck-on' crusts are streptococcal. Here, the principles of treatment are to remove the crusts, thus removing the large number of micro-organisms, killing or inactivating them without damaging the skin, by the application of suitable remedies and preventing the spread of infection to new sites. Very mild antiseptics such as soap and water and the application of plain vaseline or coconut oil would often cure the condition in a week. The newer remedies would cure them in 2 or 3 days and this is the chief difference between the old and the newer remedies.

All crusts should be softened with Hydrogen peroxide, saline or 2% Sodii-bicarb lotion or with clean rags dipped in warm coconut or groundnut oil and then gently removed. The raw surfaces may then be touched with 1% gentian-violet or brilliant-green or a mixture of both and then the selected ointment should be applied at least twice a day. Sulphonamide compounds have the power of sensitizing the skin in many individuals and hence creams or ointments containing sulphonamides should not be used for more than five days. The same is true of Penicillin ointments and creams, though not to the same extent. The best remedy for children is a 3 to 5% ammoniated mercury ointment and for adults the same with white precipitate 10%. In impetigo of the scalp, the hair should be cut short, the accompanying pediculosis treated and

the ointment applied till the condition is completely cured. In neglected persistent cases when the above treatment fails, P. A. M., 300 to 600 thousand units daily intramuscularly for two or three days, would rapidly clear the condition. *Impetigo-bockhart* is a superficial folliculitis, usually a staphylo-derma. The small pustules should be opened up with a sterile needle and then a solution of gentian-violet or brilliant-green applied. In some cases, fomentations of boric acid or 12% Magnesium Sulphate, are helpful and a dusting powder containing equal parts of Zinc oxide, Boric acid and Talc may be used between fomentations. In severe cases, intramuscular injections of Penicillin are invaluable.

Ecthyma is a deeper impetigo involving the cutis. It is common in children and run-down individuals; the usual sites are below the knees and the buttocks. The treatment is the same as for impetigo with the addition of good feeding, tonics and vitamins to improve the general health. After debridement the base of the ulcer should be touched with a 5% Silver-nitrate solution in severe cases. Moist dressings of boric acid, aluminum acetate or 25% Mag. Sulph solution are helpful. The circulatory condition in the legs should be improved in cases which do not respond to topical applications. Elevation of the legs by 6 inches and the use of compression bandages with an antiseptic dressing underneath are indicated in these cases. In resistant cases, systemic Penicillin therapy should be started in addition to the other measures.

Superficial folliculitis.—The treatment depends upon the sites affected. In cases when the parts affected have not much hair, drying medicaments like lotions are better than ointments as they are less messy than greasy ointments. When the parts affected are hairy, e.g., the scalp, beard-area or the pubic region, water-miscible creams or ointments should be used. Among the creams and ointments, aureomycin, quinolor and vioform are of the utmost value, where there is a combination of eczema with folliculitis or seborrhoea with folliculitis. Dermoquinol, manufactured by the East India Pharmaceutical Works is also a good preparation. Irritation with alkaline soaps should be avoided and it is better not to use soap at all, in some of these cases. It is essential to continue the treatment for some weeks after apparent cure. In chronic cases, aureomycin or chloramphenicol by mouth or Penicillin orally or intramuscularly should be given and maintenance doses should be kept up for some weeks, lest the condition recur. In persistent cases, the cause must be removed such as exposure to irritating oils, gases, pitch etc., in some industrial occupations. -79882

Deep folliculitis and sycosis.—*Sycosis vulgaris* or *barba* is a deep persistent folliculitis of the bearded-areas. It is a very chronic, distressing, incapacitating, and sometimes incurable affection leading to scarring. In these cases, the question is to shave or not to shave. Dermatologists are generally agreed, that it is better to

shave daily. Certain precautions should however, be observed before shaving. The selected cream or ointment should be rubbed in, sometime before shaving and then a non-irritating, preferably a brushless shaving-cream should be applied. A new sharp blade should be used for every shave. After washing, the face should be wiped dry and the ointment again applied. The safety-razor and brush should be sterilised before and after use by immersing them in an antiseptic lotion, such as 5% Dettol. In America, they use Bacitracin ointment (Lilly) or Baciguent ointment (Upjohn). Amongst those available here, the best are Aureomycin ointment (Lederle) Quinolol compound ointment (Squibb), Vioform cream (Ciba) and Dermoquinol ointment (E.I. Pharma). Aureomycin by the mouth has been found to be of great value in bad cases but the condition returns after the drug is withdrawn or the dose is reduced and hence should be continued for a long time, provided no sensitivity of the skin develops.

Furuncles and furunculosis.—A furuncle is a staphylococcal infection of the deeper part of a hair follicle causing an inflammatory reaction ending in suppuration and necrosis. In America and in England, the early and systemic use of antibiotics by general practitioners has greatly lessened the prevalence of severe furunculosis and carbunculosis. In India, where the benefits of scientific medicine have not yet reached the masses due to various causes, we still see severe conditions of these pyococcal infections. In furunculosis, a few injections of aqueous Penicillin or even treatment by repository preparations of Penicillin for weeks would not cure the condition, unless correct local and external therapy is applied at the same time. The reason for this recurrence even after using Penicillin is that the antibiotic attacks and inactivates the cocci deep in the follicles but does not reach those on the surface of the skin and hairs in sufficient concentration to eliminate them entirely. Therefore when the Penicillin level in the skin is insufficient to reach these surface organisms or when the Penicillin is stopped, these organisms get again active and new lesions result. For a cure, the cocci must be attacked both from within and from without. It should be clearly understood that boils though numerous and persistent are ordinarily due to inoculation of the follicles from without and not due to infection from within. If this basic fact is kept in mind the prevention and treatment of these conditions will be easy; we can then impress upon the patient and his attendants the risk of auto-inoculation through nails and fingers and infection from contaminated clothing, baths etc. The patient is often under the wrong impression that the disease is in the blood and clamours for blood tonics and purifiers and many practitioners still prescribe Iodides, sarasaparilla etc., which have the unfortunate result of sensitizing the skin and aggravating the furunculosis. Regarding the treatment, surgery has no place in the treatment of boils. When

the boil is ripe and pointing, a small incision would relieve the pain and suffering a few hours earlier. Squeezing or pressing the boil should be avoided as the protective barriers would thus be broken down. In the dangerous area of the face squeezing or opening the boils should be scrupulously avoided as many fatalities have occurred by septic foci reaching the meninges and brain through the connections of the anterior facial vein with the cavernous sinus, *via* the ophthalmic vein and the pterygoid venous plexus. Regarding the actual external therapy, hot wet compresses of boric acid, Mag-sulphas and Vlemineckx's solution (liquor calcis sulphuratae) are the best. When using these it is advisable to protect the surrounding skin from maceration, by applying an antiseptic ointment all round, for example Hydrarg. Ammon 5% mixed with Zinc ointment. Whether compresses are used or not an anti-bacterial ointment such as Penicillin or Aureomycin ointments or the above ammoniated mercury ointment should be applied several times daily to the boil and surrounding skin, and covered with muslin and bandage or in places where bandage cannot be applied with adhesive tape. All modern dermatologists advise small doses of Roentgen rays for boils which are persistent and do not resolve quickly. This should be done by specialists well trained in this line of treatment.

In addition to the local treatment, systemic Penicillin therapy with atleast 30,000 units of repository Penicillin daily, should be continued sufficiently long in resistant cases. Besides local and systemic Penicillin therapy, supportive treatment by good food, avoidance of too much carbohydrates, and drugs, such as salicylates, iodides, bromides etc., should be advised. I have not found injections and administration of preparations containing manganese and tin of much benefit. Similarly the value of mixed staphylococcal vaccines or even auto-vaccines is doubtful. The cause of persistent boils must be sought for and systemic conditions such as diabetes, obesity, alcoholism etc., treated.

Carbuncles.—A carbuncle is a mass of confluent boils. The management of carbuncles is similar to that of boils. It is in the treatment of carbuncles that Penicillin is of great value; it has lessened the mortality, the pain and suffering caused by the large crucial incisions, resorted to even till three or four years ago, and the consequent stay in hospital for months. In carbuncles seen early, before the cribriform openings have developed in the skin, local injections twice daily of 2000 units of Penicillin in 1 c.c. of saline mixed with an equal part of 2% procaine solution using 1 to 2 c.c. for each puncture, all round the periphery in 4, 6 or 8 places according to the size and using a fresh needle for each injection brings about a magical shrinking and disappearance of the carbuncle in three or four days. In the majority of cases, carbuncles can be treated without surgical intervention by early parenteral and local injections of Penicillin. Here also, Roentgen radiation in half

erythema doses, at intervals of 3 or 4 days, for a total of three treatments is of great benefit.

Hidradenitis suppurative or sweat gland abscess:—The axillæ, the groins and pubic regions abound in large pilo-sebaceous structures called apocrine glands and infection of these glands with staphylococci leads to these chronic and persistent lesions. It starts as a subcutaneous nodule leading to an abscess, new nodules appear nearby which coalesce, and form cord-like elevated bands. Eventually the skin breaks, leaving sinuses and epithelial bridges between them. It runs a chronic course and is common in the axillæ. Treatment is complicated by the friction between the apposed surfaces, from clothing, moisture and maceration. In addition to the measures suggested above, immobilization of the area in a sling is indicated. The axilla should be shaved and kept clean and local injections of Penicillin solution are valuable. Here also X-ray exposures, in doses of 75 to 90 r weekly, do immense good. Some cases may require surgical drainage or excision.

Tropical Pulmonary Eosinophilia

Many known pathogens, including helminths, amœbæ, fungi, brucellæ and allergens cause pulmonary lesions associated with eosinophilia, but are not confined to the tropics. Many other tropical diseases also cause eosinophilia not associated with pulmonary lesions. This syndrome was first fully described by Fridtjof Møller and Barton in 1940, in South India and was redescribed in Bombay by Weingarten, who discovered the efficacy of neocarsphenamine in its treatment. Of over 1000 cases so far reported, nearly 95 per cent. were from India, the others from the Far East, Australia, W. Africa, West Indies, and S. America.

One hundred consecutive cases from the Vellore Christian Medical College Hospital, have been analysed, 51 being in children under 15 years of age. Wet weather seems to aggravate the symptoms, which are present from 2 to 9 months before medical treatment is sought. These are cough, mostly at nights and in paroxysms, wheezing and dyspnoea, all appearing in "attacks" that recur at varying intervals. Occasionally there is blood-streaked sputum and retrosternal pain and over fifty per cent. of cases have a febrile stage. Lung signs are creaking medium or coarse basal crepitations and scattered rhonchi. Children tend to show lymph-node enlargement. Neither helminths nor mites were found. Leucocytosis is due mainly to the eosinophils which may exceed 50,000 but average 6000 per cmm. X-ray examination of lungs shows increased striations, miliary mottling, and hilar lymph node enlargement, neither mites, nor helminths can be incriminated. Oxyphenarsine hydrochloride appears the best and safest remedy for adults and acetarsol for children, without veins suitable for injection. Neocarsphenamine is liable to cause encephalopathy. Arsenotherapy cures about 50 per cent, gives partial relief in most but fails to cure a very small minority of cases.—(Ball, J. D., *Trans. Royal Soc. Trop. Med. Hyg.*, 44, 237-258.)

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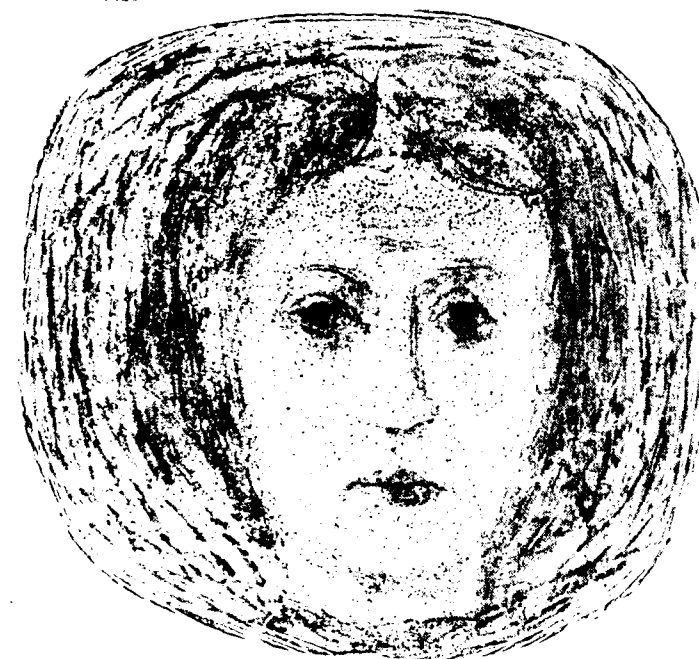
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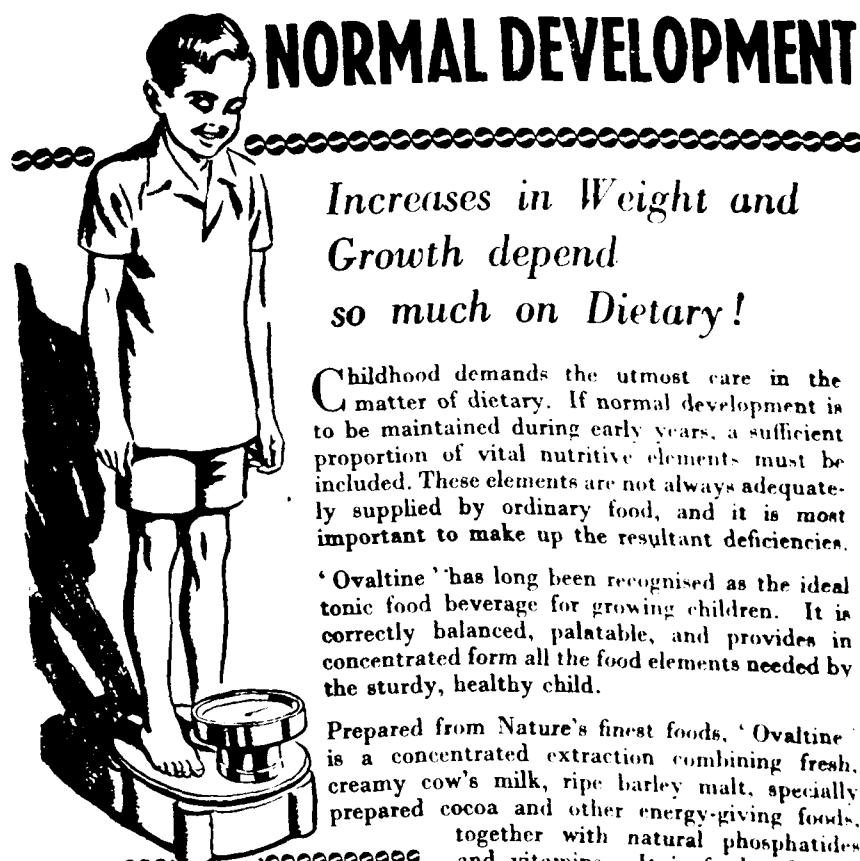
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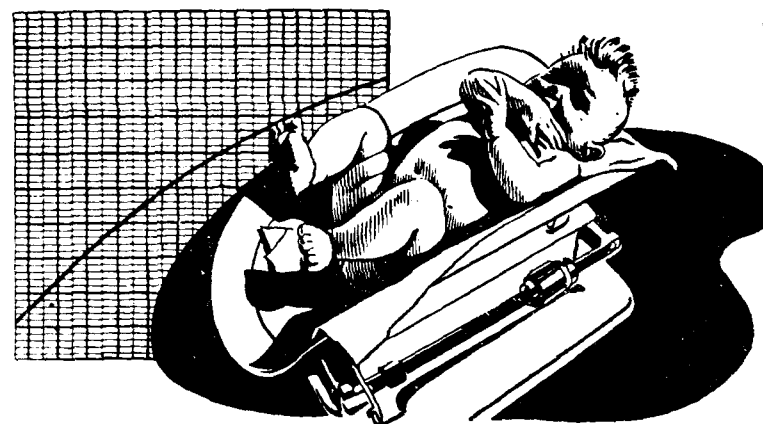
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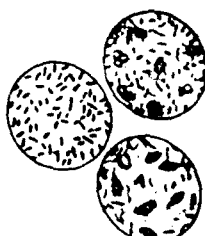


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RECENT ADVANCES IN THE TREATMENT
OF LEPROSY

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Introduction.—During the last decade great advance has been made in the treatment of leprosy, both on the curative and on the preventive side. Till recently, the only effective remedy against leprosy was the age-long treatment with hydnocarpus oil. The injection treatment with hydnocarpus oil and its derivatives has its advantages but has serious limitations too. Further developments in the treatment of leprosy were therefore, badly needed.

Research in leprosy, including therapeutic investigations, is greatly handicapped by the non-cultivation of the leprosy bacillus and the absence of a susceptible laboratory animal. A reasonable and rational approach in the therapeutic investigations of leprosy, has therefore, been the trial of remedies reported to have been found efficient in the treatment of tuberculosis. This approach has been amply justified by the results obtained.

Following this lead drugs like sulphones, streptomycin, aureomycin, PAS, and more recently thiosemicarbazone have all been tried in the treatment of leprosy. Of these, the sulphones have given the most encouraging results in leprosy, though they did not prove of great value in tuberculosis. Antibiotics like streptomycin and aureomycin have been used in leprosy to a limited extent and found to be of limited use. The same was the case with PAS. Thiosemicarbazone, for the treatment of leprosy, is still in the experimental stage.

After dealing at length with the now well-established sulphone treatment of leprosy, reference will be made to the other remedies mentioned above.

Apart from the drug treatment, advance is also being made in orthopaedic surgery and physiotherapy for the correction and prevention of deformities due to leprosy. This is a very important item in the rehabilitation and social welfare of the patients.

The sulphone drugs.—General :—The sulphone drugs are allied to, but different from the sulphonamide group of drugs. Diaminodiphenyl-sulphone, the parent compound of the sulphone drugs consists of two benzene rings joined by an SO₂ radical, and with an NH₂ radical attached to each of the benzene rings in the para position. Its structural formula is NH₂—C₆H₄—SO₂—C₆H₄—NH₂. This compound was prepared in 1908 and its high antibacterial power was discovered in 1938. However, because of its high toxicity it was not used therapeutically for a long time. Because of the toxic effects of the parent sulphone, various attempts were made to produce derivatives which would be both effective and safe. The

first derivative was made in 1937 under the name of promin; other derivatives such as promizole, diasone, sulphetrone and promacatin have been subsequently produced. There is however, some evidence to show that many of the complex sulphones are active by virtue of their getting broken down and liberating the parent substance in the body. The parent compound in minute doses has lately been used successfully in the treatment of leprosy.

Promin was the first to be used in leprosy treatment at the the National Leprosarium in the United States of America in 1941. Faget *et al* (1943) made a preliminary report on the successful results of his trial, and since then this and other members of the group have come to be widely used in that Leprosarium and in other leprosy centres of the world, and favourable results have been reported by several workers.

Certain limitations and drawbacks in this method of treatment have also been noted. Still they are the most satisfactory drugs so far used in the treatment of leprosy.

The sulphones used in leprosy.—The Diamino-diphenyl-sulphone (DDS) having been found to be too toxic for human use, a search for a relatively non-toxic but equally effective derivative, resulted in the production of a number of simple derivatives of the parent compound with various side-chains added to the amino-radicals.

The simple derivatives that have been used in the treatment of leprosy include Promin (Parke, Davis & Co.), Diasone (Abbot Laboratories), Diamidin (Parke, Davis & Co.), Sulphetrone (Burroughs Wellcome & Co.) and Novotrone (Bengal Chemical & Pharmaceutical Works Ltd.), Promacatin (Parke, Davis & Co.) and Promizole (Parke, Davis & Co.) are the two nuclear-substituted derivatives which have been used on an experimental scale. The parent compound itself (DDS) has as already stated been used in very small doses with good effects. This compound is marketed under several proprietary names *e.g.*, Avlosulphone (Imperial Chemical Industries Ltd.), Novophone (Bengal Chemical & Pharmaceutical Works Ltd.), Sulphadione (Grimault Laboratories).

Dosage and Mode of Administration

Promin.—*Method of administration* :—Faget *et al* (1943) found the drug to be very toxic when given by mouth in 0.5 to 1 gm. doses; much higher doses were tolerated by the intravenous route. It is highly soluble in water and is used as a 40% watery solution.

Dosage :—The average dose by the intravenous route is from 2 to 5 gm. (5 c.c. to 12.5 c.c. of the 40% solution). Injections are given daily for six days in a week. Larger doses possess no obvious advantage.

Sulphetrone.—*Method of administration* :—Sulphetrone was originally given by mouth. As 80% of the oral intake is excreted

unabsorbed oral administration is wasteful. Dharmendra *et al* (1950-a) found that intramuscular administration of Sulphetrone possessed greater advantages over the oral route being more economical and possibly more effective also.

A 50% watery solution of Sulphetrone in distilled water is used. This may be given subcutaneously or intramuscularly. Sulphetrone granules should be used and the solution which is acid should be neutralised by the addition of sodium carbonate before autoclaving. About 1.4 gm. sodium carbonate is needed to neutralise 1000 cc. of this solution.

Dosage :—The dose of Sulphetrone varies according to the mode of administration, being much higher by the oral route than by the parenteral route.

By the oral route the treatment should be started with 2 tablets a day (1 gm.), and the dose gradually increased to 6 tablets a day (3 gms.) which should then be continued.

By the parenteral route a maximum weekly dose of 4 to 5 gms. is recommended, starting with 1 cc. of the 50% solution twice a week (1 gm. a week) and gradually increasing the dose to 4 to 5 cc. twice a week by weekly increments of 1 cc.

Novotrone.—The method of administration and dosage are the same as for Sulphetrone.

Diasone.—*Method of administration* :—The usual method of administration of Diasone is by the mouth. However, Diasone is also incompletely absorbed from the gut though better than Sulphetrone. Because of its poor solubility parenteral administration is not possible.

Dosage :—Diasone is available in tablets of $\frac{1}{3}$ gm. each. The treatment should be started with 1 tablet a day and gradually increased to 3 tablets a day (1 gm.), and then continued.

Diamino-Diphenyl-Sulphone (DDS).—*Method of administration* :—Cochrane *et al*, (1949) and Molesworth and Narayanaswami (1949) used the parenteral route giving injections of a 25% suspension in arachis or cocoanut oil. However, unlike its derivatives DDS is rapidly and completely absorbed from the gut and the parenteral route therefore, does not offer any special advantage in the case of this drug. Lowe and Smith (1948) and Smith (1949) found that when given by mouth in doses from 0.1 to 0.4 gm., DDS is almost completely absorbed from the gut, and is very slowly excreted in the urine so that it is retained for a long time in the body, Dharmendra *et al* (1950) found as a result of controlled comparative tests that the absorption by either route was equally quick, the concentration of the drug in blood equally high, and the excretion equally slow, and that the intramuscular administration of DDS has therefore, no advantage over the oral route.

Dosage:—The dose of DDS is very small, and of a much lower order than that of any of its derivatives; higher doses are very toxic. Beginning with a minute initial dose, the maximum weekly dose of DDS should usually be about $\frac{1}{2}$ gm., and only under expert advice be raised to 1 gm. a week. The total weekly dose is spread over 6 days in the week, or as advocated by Lowe (1951), it may be given in two biweekly doses.

For the daily treatment a start should be made with an initial dose of 25 to 50 mgm. (0.025 to 0.05 gm.) given on 6 days a week. This should be gradually raised to 100 mgm. (0.1 gm.) per day in the course of 4 weeks. Normally this dose should be maintained; only in suitable cases and under expert advice, the daily dose may be raised to 200 mgm., but never beyond that.

For the biweekly treatment the starting dose should be 100 mgm. given twice a week. The dose should be increased every fortnight by 100 mgm. to a maximum of 300 mgm. (0.3 gm.) twice a week. Lowe uses this procedure extensively in Nigeria and increases the dose to 400 mgm. twice a week.

Cases suitable for sulphone therapy:—Sulphone therapy has been largely used in the more serious cases, i.e., the lepromatous type with generalised diffuse, macular or nodular lesions in which are present a large number of leprosy bacilli. Many workers believe therefore, that the sulphone drugs are useful only in this type and not in the non-lepromatous (neural or tuberculoid) type. One worker (Cochrane 1949) was at first of the view that the drug may even be harmful in this type: he has however since, modified his view to some extent.

It is no doubt difficult to assess the value of a method of treatment in the tuberculoid type because of its relatively benign nature and of the tendency to spontaneous cure observed in several cases. However, Souza Lima (1948), Lowe (1950-a), Dharmendra *et al*, (1950-b) and Johansen *et al* (1950) have all reported beneficial results in active cases of this type. Dharmendra *et al* reported on the treatment of 15 cases of the tuberculoid type in which the clinical subsidence was much quicker under sulphone therapy than would have been expected under hydnocarpus treatment or as a result of spontaneous arrest. Of the tuberculoid nature of the lesions in these cases there was no doubt; 13 of the 15 cases were lepromin positive, the lesions in most cases were histologically tuberculoid, and bacteriologically they were either negative or only slightly positive, becoming negative early under treatment. Lowe has reported beneficial results with sulphone treatment in 50 cases of this type. He found that after a preliminary phase of focal reaction in the skin lesions, the signs of activity slowly subsided and usually within 6 months the lesions became inactive and residual, though the signs of activity in the nerves subsided much more slowly.

Sulphone drugs are thus of definite value in all cases of leprosy in which the disease is active and progressive, irrespective of the type of the disease.

A. Results in cases of the lepromatous type.—Though beneficial results are obtained in all lepromatous cases, more advanced cases with extensive thickening of skin, nodulation, ulceration, and lesions of the eyes, nose and throat, appear to derive the greatest benefit.

Clinical improvement:—The first thing is, that further progress of the disease is checked and the disease, then begins to retrogress slowly and steadily and in time the very appearance of the patient and his entire outlook on life are changed and there is considerable improvement in his general health. It takes about six months to note any appreciable objective improvement, but after a few weeks the patient begins to have a sense of well-being and lightness. The first sign of improvement is observed in the healing of ulcers on the skin, and nose, and in the clearing-up of the lesions in the nose and throat. Marked all-round improvement is usually seen only after treatment for about a year or two.

Clinical improvement occurring in the various signs and symptoms may be summarised as under:—

Leprous ulcers:—Chronic leprosy ulcers heal rapidly and do not recur. The healing of the ulcers provides the first objective sign of improvement and contributes greatly to the welfare of the patient.

Nasal mucosa:—The improvement in the nasal condition is evident before long. The blocking of the nose gradually clears up, and epistaxis, if any, stops; nasal ulcers also heal though somewhat more slowly than the ulcers on the extremities.

Eye lesions:—Leprous iritis and eye reaction respond well to treatment. The pain and redness in the eyes decrease and gradually disappear, and the eye reactions are less frequent and may get completely under control. With the improvement and settling down of the eye condition it is possible to undertake in suitable cases such operative measures as iridectomy and removal of an opaque lens, measures which improve and restore eye-sight, but which cannot normally be considered in an eye subject to frequent flare-ups.

Reports from countries where severe eye lesions are more common, state that such lesions as nodular iritis and diffuse irido-cyclitis do not improve but sometimes get worse under sulphone treatment.

Larynx:—The lesions in the larynx gradually heal under treatment, and the hoarseness of voice improves greatly. In patients with symptoms of acute laryngeal obstruction and in whom tracheotomy might seem imminent, the sulphones quickly improve the condition, and the patients are saved from tracheotomy.

Nodulation and infiltration :—Nodulation and thick infiltrated areas in the skin begin to shrink shortly after treatment. The rate of subsidence is slow but the results are certain. In some cases the nodules soften, burst, discharge and then cicatrize. In others the nodules are absorbed without any matter being discharged. In both instances after prolonged treatment one can find only scars in place of previous nodules.

Lepra-reaction :—Leprosy is a chronic disease in which rapid changes are not usually seen, but occasionally acute exacerbations occur, and this acute flare-up is termed 'lepra-reaction'. Under sulphone treatment 'reactions' become less frequent and less severe, and finally are completely eliminated.

Nerve-pains :—Improvement in this condition is very slow, and it is only after prolonged treatment that response is obtained.

Bone-pains :—Bone-pains disappear in most cases, probably as a result of the healing of the leprosy lesions in the bones.

Bacteriological improvement :—The bacteriological improvement is slow and not as readily apparent as the clinical improvement. The first change to be seen is not in any reduction in the number of bacilli but in the morphological appearance of the bacilli which get beaded, become less acid-fast, and stain irregularly. Gradually a reduction occurs in the number of bacilli, but it takes a very long time for the bacilli to disappear completely. It may take on an average, 2 to 5 years for a moderately advanced lepromatous case to become bacilli-negative. Bacteriological improvement though slow is quite definite. Nasal smears become negative earlier than skin smears taken from different parts of the body. This observation coupled with the fact that leprosy ulcers both in the skin and the nose yield to sulphone treatment has a bearing on the role that the sulphone drugs play in the control of the spread of leprosy.

B. Results in cases of the tuberculoid type.—It has already been stated that the sulphone drugs are of value in the treatment of active lesions of this type also. Signs of activity of the lesions (thickness and redness) slowly subside, and the leprosy bacilli if present disappear early. In patients subject to repeated reactions, this condition responds very favourably to sulphone treatment. Thickening and tenderness of the nerves, especially the thickness, subside much more slowly.

Toxic effects and complications.—When an initial small dose is given which is increased gradually, thereby avoiding needlessly high doses, there are no severe toxic effects.

Minor toxic symptoms which are, however, commonly met with vary with the preparation used and the mode of administration. They are most frequently seen with diamino-diphenyl-sulphone and least frequently with sulphetrone administered parenterally.

The most common toxic effects are the production of anæmia, a feeling of fatigue and general weakness, giddiness, and sometimes a burning sensation in the extremities. In the case of oral administration, gastric disturbances (nausea, vomiting etc.) are common. These symptoms are specially noticeable at the beginning of the treatment and until tolerance for the drug is gradually acquired; therefore, the appearance of mild symptoms does not call for the discontinuance of the treatment.

The administration of these drugs causes a decrease in the red cell count and a parallel decrease in the hæmoglobin value, which are usually not of a serious nature when the dose is properly regulated. The hæmoglobin and red cell values may be maintained at satisfactory levels by the administration of hæmatinics when indicated. When there is a marked fall in the R.B.C. and hæmoglobin contents of the blood, sulphones should be discontinued for some time, and hæmatinics administered to restore the normal blood values.

An increase in the dose sometimes provokes an attack of neuritis, iritis or synovitis; these conditions, however disappear when the dose is reduced or the drug is temporarily suspended. These complications may be treated on the usual lines; in case of iritis, the pupil should be kept dilated by atropine, first as 1% drops, and later as ointment. Drug dermatitis that may occasionally occur will respond to the anti-histamine drugs such as Anthisan, Antistine, or Benadryl.

Sulphone drugs sometimes produce a reaction, particularly when the initial dose is big or when the dose is rapidly increased. This is common in the first six months of treatment and may be seen sometimes later also in the course of treatment but in a less severe form. The onset of reaction is characterized by a rise in temperature, thickening and erythema (redness) of existing lesions, and sometimes by the appearance of fresh raised red patches; in some cases there may be signs of neuritis and iritis. The sulphone drug should then be stopped at once and treatment to control the reaction instituted. When the reaction is mild, no special treatment may be needed beyond the symptomatic use of analgesics and hypnotics. When severe, the special treatment most widely used is the intravenous injection of Potassium-antimony tartarate (P.A.T.) given (0.02 gm. dissolved in 1 cc. of saline), every other day for 6 doses. Fouadin (Bayer) and Fantorin (Glaxo), the trivalent antimony compounds are also useful, and they can be given intramuscularly, 2 cc. every other day for six doses. Roche M. *et al* have reported recently that ACTH in doses of 40–80 mgs. per day I.M., for a maximum of seven days is beneficial in controlling such reactions. The sulphone drug should be recommenced (with half the dose which brought on the reaction) as soon as the reaction has completely subsided.

Another condition which is often noticed, and which should be differentiated from the above, is the appearance in some patients who are otherwise improving, of small painful red nodules or raised patches which are transient, and which usually occur without any rise of temperature. This condition should not be confused with the lepra-reaction; and the treatment with sulphone need not be discontinued or suspended.

Limitations to the treatment.—The sulphones no doubt mark a notable advance in the treatment of leprosy, but at the same time suffer from many limitations.

The greatest limitation of sulphone therapy is the unduly long time taken for the complete elimination of the leprosy bacilli from the skin and nerves. Varying with the nature of the lepromatous lesions it takes about 2 to 5 years for the bacilli to disappear from the skin, and in not a few cases the bacilli may persist in small numbers even after 5 years. Even then they may still be found in the nerves.

In the matter of clinical improvement the sulphones have no doubt revolutionised leprosy treatment, though it is a prolonged one and has to be continued for several years on end. Again there are some patients who improve only up to a certain point and then the lesions become stationary and do not show further subsidence. Again there are a few cases of persons in a poor and run-down state of health who totally fail to respond to sulphones.

Another drawback in sulphone treatment, is the tendency to relapse when the drug is stopped after the arrest of the disease. This tendency is just becoming apparent and may be noticed more frequently in future years. I have seen relapse in a patient who was discharged from the hospital after he had remained bacteriologically negative for about a year; after discharge from the hospital the treatment with the sulphone was discontinued and he returned with a general clinical and bacteriological relapse after a little over 2 years. Johansen and Erickson (1950) have reported relapses in 6 of their 33 patients who were followed-up for one to five years after apparent arrest of the disease; the relapse rate amongst patients in whom the sulphone therapy was discontinued was 45%, but in patients who continued treatment (with one-third of the usual dose) after arrest, the relapse rate was only 4.5%.

Role of Sulphones in controlling the spread of leprosy.—Even with all the limitations cited above, the extensive use of the sulphones is bound to exert a salutary influence on the control and the prevention of the spread of leprosy. It certainly takes long to make all the bacilli disappear from the patient's body, but such bacteriological improvement is evident after treatment for about a year. This improvement appreciably reduces the infectivity of the patient, by an actual decrease in the number of bacilli, and also by

the healing of leprosy ulcers, both in the nose and other parts of the body, and a consequent decrease in the infective discharges from the patients. Discharges from the ulcers in the nose and elsewhere constitute a most potent factor in the spread of infection; and so any measure directed towards eliminating or minimizing this factor, will have a restraining influence on the spread of the disease. This will be possible only if sulphone therapy is applied on an extensive scale so as to include not only the in-patient leprosy institutions, but also all the leprosy clinics and general dispensaries where the vast majority of the cases have to receive treatment as out-patients. This is very essential in our country which has an enormous number of leprosy patients and extremely limited inpatient accommodation for them.

In the leprosy institutions themselves, the use of sulphone drugs would result in a quick turn-over of patients, and thus enable the limited accommodation in the in-patient institutions to be utilised to much greater advantage. Rather than concentrate on a small number of patients, it would be more advantageous to discharge from leprosy institutions, patients who become relatively non-infective under sulphone drugs, and ask them to continue their treatment from outside, thus making room for the more infective patients within the leprosarium.

The need for wider use of sulphones.—The sulphone drugs have proved their efficacy in the treatment of leprosy; in our country they are still used on a comparatively limited scale owing to the relatively high cost of the drugs and the exaggerated fear of toxic reactions. As there has recently been a considerable reduction in the cost of treatment, a wider use of the drugs is predictable, both for curative and for preventive purposes.

General procedures to be observed in treatment.—1. *Blood-examination.*—Because the sulphone drugs have a tendency to produce anaemia, the treatment should be regulated by periodic blood examinations, and when necessary sulphone treatment should be supplemented by iron, yeast and liver.

Before commencing treatment, the blood should be examined, and if the red cell count and hæmoglobin are found below 60% the patient should first be put on a course of hæmatinics; and sulphone drugs should be started, after the blood picture shows sufficient improvement. However, in cases needing urgent sulphone therapy small doses of the drug may be given in spite of the poor blood-picture.

2. *A small initial dose.*—Treatment with the sulphone drugs should as a rule be started with small initial doses, and then only gradually increased. The maximum dose should not go beyond the usual recommended dose, since larger doses do not speed up either the clinical or the bacteriological improvement.

3. *Rest-periods*:—In the course of treatment, the patient should get periodic rests during which sulphone should be stopped. This will minimise the chances of severe toxic reactions, and will also give time for the hæmopoietic system to recuperate.

In the case of oral treatment, the drug should be administered for 6 days in a week and omitted on the 7th day; and after 3 months' continuous treatment, 14 days' rest should be given.

In the case of parenteral administration weekly rest is not necessary as the injections are given only twice a week. A fortnight's rest should however, be given after 6 months' treatment.

4. *Choice of the preparation*:—Of the sulphone drugs that have been commonly used, promin cannot be the drug of choice, as it has to be given daily by the intravenous route and as it is very rapidly eliminated from the body. Further it appears to be more toxic than the other proprietary sulphones.

For parenteral administration the best preparation is a 50% watery solution of sulphetrone or novotrone given intramuscularly. The oral use of these drugs is very uneconomical, because large amounts of the intake pass out unabsorbed.

For oral administration diasone or diamidin is better than sulphetrone or novotrone, and the parent compound (DDS) is perhaps the best preparation; because of its very low cost and its efficacy in small doses by mouth, DDS is the ideal preparation for mass treatment in countries like India with an enormous leprosy problem and very limited financial resources.

5. *Maintenance dose*:—In view of the tendency to relapse, small doses of sulphone drugs should be continued for a long period. Johansen and Erickson (1950) advocate the indefinite use of maintenance doses after apparent arrest or inactivity of the disease, in order to prevent relapses.

Other Drugs Used in Treating Leprosy

Besides sulphones various other drugs used in the treatment of tuberculosis, have been subjected to trial in leprosy with varying results. These drugs include Streptomycin, Aureomycin, Para-amino-salicylic acid (PAS), and more recently Thiosemicarbazone.

Streptomycin.—Johansen and Erickson (1950) reported that streptomycin and dihydrostreptomycin in doses of 1 gm. intramuscularly every day have proved to be useful adjuncts in leprosy therapy. They found these drugs effective in accelerating the regression of leprosy lesions, particularly of the mucous membranes. They were specially useful in patients in whom clinical improvement on sulphone therapy had been retarded; the addition of this antibiotic to the sulphone treatment, effected a renewed clearing-up of the skin and mucous membrane lesions. As these antibiotics have a tendency to produce vertigo and tinnitus, they cannot be

continued for a sufficiently long time. So they can at best be adjuvants to sulphones in the treatment of leprosy.

Erickson's (1951) findings on the treatment with these antibiotics of a group of patients, showed that "in dosages as low as 0.5 gm. daily, streptomycin and dihydrostreptomycin produce beneficial effects upon the specific cutaneous and mucous membrane lesions of leprosy." Owing to their toxicity, they cannot however be used for more than six to nine months. Erickson concluded that "unless a less toxic product is found, or unless the dosage can be further reduced without impairing the therapeutic activity, so that extended treatment can be undertaken, the value of streptomycin and dihydrostreptomycin must of necessity be limited to that of an adjuvant to sulfone therapy." He recommends the use of these antibiotics: (1) for hastening the resolution of specific leprosy skin and mucous membrane lesions by combining it with the sulphones at the beginning of treatment; (2) for effecting further clearing of residual leprosy skin lesions which have reached a stationary stage under sulphone treatment; (3) for the relief of annoying symptoms of sulphone-resistant mucous membrane lesions, and for the healing-up of such lesions; (4) for aborting attacks of acute leprosy iridocyclitis; and (5) for treatment of patients who have an idiosyncrasy to the sulphones.

Apart from the question of toxicity, the high cost of the drug will limit its use in several countries where leprosy is widely prevalent. Streptomycin cannot therefore, be adopted as a basic treatment for leprosy.

Aureomycin.—Johansen and Erickson (1950) treated 5 patients with leprosy for one year using aureomycin in daily doses of 1 to 1.5 gm. orally. Clinical and bacteriological improvement was noticed, but all the patients had periods of gastric intolerance. They were therefore, of the opinion that "a statement on the ultimate effectiveness of aureomycin in leprosy must await further trial in a larger group of patients."

Para-amino-salicylic acid (PAS).—Dharmendra (1950) tried PAS in 2 lepromatous cases of leprosy for 8 months. The treatment was started with a daily dose of 20 gm. which on account of intolerance was reduced to 15 gms., given in divided doses every 3 hours, in the form of a 20% solution of sodium para-amino-salicylate. Both the cases showed some clinical improvement but there was no appreciable bacteriological improvement. It was therefore felt that PAS could only be used as an adjunct to sulphones; but because of its high cost, it had a very limited sphere of usefulness.

Thiosemicarbazone.—The latest anti-tuberculosis drug that has come to be tried in leprosy is thiosemicarbazone (4-acetylaminobenzaldehyde thiosemicarbazone). This compound was developed by Domagk in collaboration with workers of the Bayer Laboratories

and marketed under the name of "Conteben." It is now being produced by other laboratories as well, under the names of "Tibione," "Myrizone," "Thiacetazone" and "Siocarbazone," etc. Ryrie (1950) recorded promising results in 10 cases of leprosy treated with this drug, over a period of 4 months; all the patients showed clinical and bacteriological improvement. Ryrie was of the opinion that improvement in these cases was more rapid than would have been possible with the sulphone drugs and that this drug was less toxic than the sulphones. Vegas *et al* (1950) have made a preliminary report on the treatment of 42 lepromatous cases for a period of 3 to 6 months. These authors state "the initial results observed indicate marked therapeutic activity." Johansen and Erickson (1950) report that all the five patients they treated, showed improvement; particularly the two far advanced lepromatous cases. The drug is being tried also in the Leprosy Department of the School of Tropical Medicine. It is as yet too early to assess its value in leprosy, though from the available results it appears to have definite therapeutic value in the treatment of leprosy. It is not however free from toxicity, as reported by a previous worker; for even a small dose of 25 mgm. or less resulted in the production in certain cases of a febrile reaction sometimes accompanied by iritis.

References:

1. Cochrane, R. G., (1948)—New Developments in the therapy of Leprosy. Proc. 4th Int. Cong. Trop. Med. and Malaria, Wash., 1, 374. (Reprinted, Int. Jl. Lep., 1949, 17, 283).
2. *Idem*, (1949)—General Principles in the Treatment of Leprosy with Particular Reference to the Sulphones, Lep. in India, 21, 83.
3. *Idem*, (1949a)—Editorial: Sulphone Treatment of Leprosy. Int. Jl. Lep., 17, 299.
4. Cochrane, R. G., Ramannujam, K., Paul, H., and Russel, D., (1949)—Two-and-a-half Years' Experimental Work on the Sulphone Group of Drugs. Lep. Rev., 20, 4.
5. Dorev, T. F., (1949)—The Treatment of Leprosy With Sulphetrone, Lep. Rev., 19, 55.
6. Davison, A. R., (1948)—Sulphetrone. South African Leprosy Conference, Pretoria.
7. Dharmendra, (1948)—Treatment of Leprosy with Sulphone Drugs. Memoirs V. International Leprosy Congress, Havana, p. 826.
8. *Idem*, (1949)—Some Observations on the Treatment of Leprosy with Sulphone Drugs. Lep. in India, 21, 102.
9. *Idem*, (1950)—The Results of Sulphetrone Treatment in the Gobra Hospital, Calcutta, *Ibid*, 22.
10. *Idem*, (1950a)—The Present Status of Sulphones in the Treatment of Leprosy. Ind. Med. Gaz., Vol. LXXXV, 348.
11. Dharmendra and Chatterjee, K. R., (1947)—Treatment of Leprosy with the Sulphone Drugs, Leprosy in India, 20, 70.
12. Dharmendra, Chatterjee, K. R., and Bose, R., (1950)—Diamino-diphenyl-Sulphone in the Treatment of Leprosy. Pharmacological Aspects, *Ibid*, 22, 174.
13. Dharmendra, Dey, N. C., Bose, R., and Kapur, P. L., (1950a)—Sulphetrone given Intramuscularly in the Treatment of Leprosy. Int. Jl. Lep., 18, 309.
14. Dharmendra, Sen, N., and Chatterjee, S. N., (1950b)—Treatment of Leprosy with Sulphetrone Injections in Outpatients, Lep. in India, 22, 112.
15. Erickson, P. T., (1951)—The Status of Streptomycin and Dihydrostreptomycin in the Treatment of Leprosy. Int. Jl. Lep., 19, 1.
16. Erickson, P. T., and Johansen, F. A., (1948)—Bone Changes in Leprosy under Sulphone Therapy. Int. Leprosy Congress, Havana, p. 193 (Reprinted, Int. Jl. Lep., 16, 147).
17. Faget, G. H., (1945)—Therapeutic Effect of Promin in Leprosy. Pub. Health Rep., 60, 1166.

References—(Contd.)

18. *Idem*, (1947)—Chemotherapy of Leprosy. Int. Jl. Lep., 15, 7.
19. Faget, G. H., and Erickson, P. T., (1948)—Chemotherapy of Leprosy. J. Amer. Med. Assoc., 136, 451.
20. Faget, G. H., and Pogge, R. C., (1945)—Treatment of Leprosy with Diasone: A Preliminary Report. New Orleans Medical and Surgical Journal, 98, 145.
21. Faget, G. H., Pogge, R. C., and Johansen, F. A., (1946)—Promizole Treatment of Leprosy: A Preliminary Report, *Ibid*, 61, 957.
22. Faget, G. H., Pogge, R. C., Johansen, F. A., Duian, J. F., Prejean, B. M., and Eodes, C. G., (1943)—The Promin Treatment of Leprosy, Pub. Health Rep. 58, 1729.
23. Faget, G. H., Pogge, R. C., and Johansen, F. A., (1946)—Promizole Treatment of Leprosy: A Preliminary Report. *Ibid*, 61, 957.
24. Faget, G. H., Pogge, R. C., Johansen, F. A., Fite, G. L., Prejean, B. M., and Gemar, F., (1946a)—Present Status of Promin Treatment of Leprosy, Int. Jl. Lep., 14, 30.
25. Fernandez, J. M. M., and Carboni, E., (1946)—The Action of Diasone in the Treatment of Leprosy, Int. Jl. Lep., 14, 19.
26. Fiol, H., Jonquieres, E. D. L., Brusco, C., Melamed, A., and Firpo, C., (1948)—Treatment of Leprosy with Promin, Rev. Argentina Dermat., 31, 531.
27. Johansen, F. A., and Erickson, P. T., (1947)—Promizole Treatment of Leprosy. (A Progress Report), Int. Jl. Lep., 15, 378.
28. *Idem*, (1948)—Studies on the Therapy of Leprosy, Proc. 4th Int. Cong. on Trop. Med. and Malaria, Wash., 1, 365.
29. *Idem*, (1950)—Current Status of Therapy in Leprosy. Jl. Amer. Med. Assoc., 144, 985.
30. Johansen, F. A., Erickson, P. T., Wolcott, R. C., Meyer, W. H., Gray, H. H., Prejean, B. M., and Ross, H., (1950)—Promacatin in Treatment of Leprosy, Pub. Health Rep., 65, 195.
31. Lowe, J., (1950)—Treatment of Leprosy with Diamino-diphenyl-Sulphone by Mouth. Lancet, i, 145.
32. *Idem*, (1950a)—The Sulphone Treatment of Tuberculous Leprosy, Int. Jl. Lep., 18, 457.
33. *Idem*, (1951)—Diamino-diphenyl-Sulphone in the Treatment of Leprosy, 18, Lancet, 1, 18.
34. Lowe, J., and Smith, M., (1948)—The Chemotherapy of Leprosy in Nigeria with an Appendix on Glandular Fever and Exfoliative Dermatitis Precipitated by Sulphones. Annual Report of the Nigeria Research Unit, B.E.L.R.A., (Reprinted, Int. Jl. Lep., 1949, 17, 181.)
35. Molesworth, D., and Narayanaswami, P. S., (1949)—The Treatment of Lepromatous Leprosy with DDS in Oil. Findings in 100 Cases Treated in 1 year. *Ibid*, 17, 197.
36. Mom, A. M., (1946)—Promin in the Treatment of Leprosy. Prensa Med., Argentina, 38, 2390.
37. Muir, E., (1944)—Preliminary Report on Diasone in the Treatment of Leprosy, Int. Jl. Lep., 12, 1.
38. *Idem*, (1946)—Diasone in the Treatment of Leprosy. Lep. Rev., 17, 87.
39. *Idem*, (1947)—The Sulphone Treatment of Leprosy, Brit. Med. Jour., (Reprinted, Int. Jl. Lep., 15, 309).
40. Roche, M. *et al*, (1951)—The Effects of Adrenocorticotrophic Hormone (ACTH) in Lepromatous Leprosy Reaction, Int. Jl. Lep., 19, 137.
41. Ryrie, G., (1950)—Thiosemicarbazone in the Treatment of Leprosy, Lancet, ii, 286.
42. Sharpe, E. A., and Payne, E. H., (1948)—The Present Status of Sulphones in Therapy. Memoirs V. International Leprosy Congress, Havana, p. 109.
43. Sloan, N. R., (1948)—Effects of Sulphone Treatment on the Larynx in Leprosy. Int. Jl. Lep., 16, 329.
44. Smith, M., (1949)—A Pharmacological Study of the Three Sulphones, Part I Absorption, Distribution and Excretion. Part II. Hydrolysis and the Specific Toxic Phenomena, Lep. Rev., 20, 78 and 128.
45. Souza Lima, L., (1948)—Present Status of Sulphone Therapy at Padre Bento Sanatorium, Rev. Brasileira Leprol., 16, 75.
46. Vegas, M., Convit, J., Medina, J. A., and De Blumenfeld, E., (1950)—Thiosemicarbazone (TB-1) in the Treatment of Leprosy. Preliminary Communication, Int. Jl. Lep., 18, 451.
47. Wharton, L. H., (1946)—Promin Therapy in Leprosy, Lep. Rev., 17, 96.
48. *Idem*, (1947)—Preliminary Report on New Sulphone Drug, 'Sulphetrone'. Int. Jl. Lep., 15, 231.
49. Winter, P. D., (1948)—Sulphone Treatment in Leprosy, South African Leprosy Conference, Pretoria.

TREATMENT OF CONGESTIVE HEART FAILURE

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CONGESTIVE heart failure is not a disease but a symptom-complex characterised by engorgement in one or both of the main vascular beds (systemic or pulmonary) and brought about by conditions, which interfere with the filling of one or more of the cardiac chambers. This syndrome is produced by a large number of different conditions:—(1) Underlying factors which may cause heart disease; and (2) aggravating factors, which in themselves do not usually cause cardiac disease but which frequently cause heart failure in patients whose hearts are already damaged.

In the management of patients with congestive heart failure, the first attempt should be to determine whether the underlying cause of the congestion is such as would be amenable to treatment. Most of the common underlying causes like rheumatic fever, hypertension, coronary arteriosclerosis, chronic lung diseases and syphilis are incurable, once these have produced cardiac injury. Brilliant results are frequently obtained by the medical treatment of beriberi, diphtheria, myxoedema and pernicious anaemia and by surgical treatment, when the underlying disease is thyrotoxicosis, constrictive pericarditis or arteriovenous fistula. In spite of their rarity, these are important and should always be borne in mind.

The aggravating factors i.e. the precipitating causes of heart failure are of special practical significance in its management as they often respond to treatment. The most important aggravating factors are infections, especially of the respiratory tract, excessive exertion, cough, obesity, anaemia, severe emotional and mental strain. These usually respond satisfactorily to treatment. Congestive failure developing during early pregnancy is an indication for therapeutic abortion unless the symptoms disappear almost entirely under digitalis. In the later stages of pregnancy congestive heart failure is managed by complete rest, digitalis, and delivery, when the child is viable, by any means which impose the least cardiac strain on the particular patient. The disorders of cardiac rhythm frequently precipitate heart failure but usually respond satisfactorily to treatment.

The primary aim of treatment of congestive failure is the calling for measures, which decrease the work of the heart and increase the efficiency of its action irrespective of the cause of failure. Such measures include rest, digitalis, diuretics, other drugs, and surgical measures.

General measures.—*Rest*:—The chief and most valuable means of decreasing the burden on the heart is all-round rest, emotional, mental and physical. The amount of rest varies from

slight restriction of activities in the earliest stages to 'rest in bed' in mild cases of decompensation and 'absolute rest' in severe cases showing deep congestion. In ordinary 'rest in bed' the patient moves about a good deal by himself, reaches for various things, feeds himself, holds a book to read, sometimes writes or dictates and often entertains visitors. With 'absolute rest' he does as little as possible himself and has to be very carefully nursed. He does not lift himself or change his position. He is not allowed to wash, dress or feed himself or to reach for objects or hold them to read or write. He is lifted on and off the bed-pan with the minimal amount of disturbance. The patient is discouraged from talking beyond immediate wants and from attempting to assist the nurse, who moves him. He is denied all but a very few visitors of calming and pleasing influence and is shielded as far as possible from business and other worries. However, like any other patent therapeutic measure, rest too can be overdone. In persons with chronic congestive failure and especially those of advanced years, insistence on continuous bed-rest for several weeks is apt to predispose them both to pneumonia and to infarction of lungs, rather than do them good. It will be wise to keep such patients in bed for only a few days at a time and then to allow them the use of a chair.

Posture:—The attending nurse should appreciate the value of correct posture to the congested patients, who feel most uncomfortable unless the head is well raised. To maintain this posture care should be taken to support the whole spine on numerous pillows and not make the common mistake of supporting only the shoulders and head, thus sharply flexing the spine. A rolled up *gadda* with pillows arranged, acts as a very good back rest in the patient's home. A bolster across the bed beneath the patient's knees will stop the patient slipping down the bed. Lewis' bedstead with the wire mattress in three pieces hinged together and controlled, so that they can be inclined at any desired angle has facilitated the nursing of cardiac patients. Orthopneic patients appreciate the heart-table such as Sister Rawson's, affording a well padded support across the bed on which the patient may lean his forehead.

Diet:—Reduced fluid intake with rest makes an efficient diuretic. Fluids should therefore, be restricted (1½—2 pints) to an amount short of producing undue thirst or discomfort. The diet should be low in salt-content particularly the salts of sodium especially when oedema is present. Vitamins C and B₁ have beneficial effect in correcting cardiac oedema. The diuretic effect of ascorbic acid in congestive heart failure recorded by Evans⁴, Mathur¹⁰ and others, is now an established fact. It is desirable to reduce the total calories to 800-1000 for the first few days in order to reduce metabolism and decrease the work of the heart. Reduction of proteins is desirable, fats are poorly tolerated, whereas carbohydrates furnish a ready supply of energy and are usually acceptable in an easily assimilable

form. For those who do not dislike milk, Karrel-diet containing 7 ounces of milk four times a day with no other food or drink has much to recommend it, at least, for the first few days of treatment of a markedly oedematous patient, who has little desire for food and often becomes distressed with mastication. Friend⁷ prefers a fruit diet because it provides a larger variety, is better tolerated and may even promote diuresis. The diet is gradually increased as congestion subsides but should remain small in quantity, and capable of being easily digested, and should be administered in five feedings instead of two, the evening meal being kept particularly small. In hospital practice, the routine diet of the ward must be frequently readjusted to suit the special needs of the cardiac patient.

Sleep.—A congested and breathless patient appreciates nothing more than a few hours peaceful sleep for, this effects a remarkable improvement in his condition. It is worth aiming at a total of 10 hours' sleep in 24 hours but medication is necessary, when the hours of sleep fall below six. In recent years, barbiturate preparations have shown a tendency to replace paraldehyde (which is by far the safest and most effective hypnotic) and chloral bromide, on account of the ease of administration and reliability. Phenobarbital gr. 1-2, Medinal gr. 5-10, Dial gr. 1½-3, Amytal gr. 3, Soneryl or Gardenal gr. 1-2, one hour before sleep, is given by the mouth. Morphine is not the hypnotic of choice in congestion, as it is in left ventricular failure but may be necessary for the first night or two, if other sedatives fail and particularly if pain is present, as after pulmonary infarction.

Oxygen.—Oxygen is indicated in any patient with arterial oxygen unsaturation, as in acute congestive failure and treatment of serious complications like pulmonary infarction and pneumonia in cardiac failure. It is not suitable for constant use in chronic failure. The oxygen tent in which the patient breathes 40 to 50 per cent pure oxygen is the ideal method for the administration of oxygen. B.L.B. mask is the next best choice. Nasal catheter can be made effective if passed well back and the gas is first led as a continuous stream of bubbles through warm water. The funnel method of oxygen administration is a colossal waste of oxygen without appreciable benefit.

Digitalis.—The cardinal remedy in the treatment of congestive heart failure is digitalis. It is not a cardiac panacea but its intelligent use is a real triumph in the practice of cardiac failure treatment, permitting the accomplishment of results not possible by unaided nature.

Indications and contraindications.—The presence of congestive cardiac failure is the outstanding indication for the use of digitalis. It is immaterial whether failure is mild or severe, whether blood pressure is high or low, whether aortic regurgitation is present or not, whether the heart is regular or irregular, fast or slow, and

whether the failure involves the whole heart or is mainly of the right or of the left side. It is true that the drug is most effective when auricular fibrillation with a rapid ventricular rate of 150 or thereabouts is present, when the lesion is the result of antecedent rheumatic infection and when mitral stenosis is present. There is no absolute contraindication to digitalis when the drug is really needed, except in the very rare individual hypersensitivity to the drug. It should be withheld or given with caution to cases of partial heart block, peripheral circulatory failure and to patients with those disorders which predispose to ventricular fibrillation—recent myocardial infarction, acute rheumatic carditis, ventricular tachycardia and angina pectoris.

Dosage and choice of preparation.—The cardiac patient requires digitalis for two purposes. First a large dose to produce a therapeutic effect in one or divided doses and thereafter a smaller regularly repeated dose to maintain this effect. Digitalis once begun may have to be continued indefinitely but a smaller dose is required to maintain correct concentration. It is not possible to calculate the dose by biological standardization nor yet from patient's body-weight as commonly believed. In fact no two patients require the same amount. It can only be settled after clinical trial involving a therapeutic study in every patient.

The two important species of digitalis leaves are : (1) *Digitalis purpurea* and ; (2) *Digitalis lanata*. The potency of digitalis varies from species to species ; even in the same species the content of active principles is inconstant and such factors as the location of growth of the plant, its age, the process of collecting and drying digitalis leaves entailing a varying extent of destruction of active constituents, all influence the potency. *Digitalis purpurea* leaf in powder form and tinctures are going out of fashion except that the former is now sometimes used for maintenance therapy on account of its low cost. The isolation of pure crystalline glucosides is an important advance in the therapy of cardio-tonic drugs and have rendered digitalis therapy simpler and safer.

Numerous pharmaceutical preparations of glucosides of digitalis are available for use. A controlled clinical investigation, with a daily record of pulse, respiration, weight, urinary output and signs and symptoms of heart failure, was undertaken with four preparations to determine the dose of digitalisation, and maintenance and the effectiveness of their action.

Digitoxin is a pure glucose isolated from *digitalis purpurea*. It is completely absorbed from the gastrointestinal tract (therefore acting as efficiently by mouth as by the intravenous route), has a more prolonged duration of action and slower rate of elimination than the other crystalline glucosides of digitalis. These pharmaceutical investigations and clinical observations have led Eggleston³, Beckman¹, Gold⁷, Katz and Wise⁸ to suggest that there is no other glucoside

superior to digitoxin for oral use. Crystodigin (Lilly) and Digitoxin (Raptoks) were used for our experiments. They met with the requirements of average, severe and urgent cases. The digitalising dose was found to be small (1.2 mg. to 2.0 mg.) producing no gastrointestinal upset and fairly rapidly acting when given orally. The maintenance dose was one tablet of 0.1 mg. or 0.2 mg.

Digoxin is a pure glucoside obtained from *digitalis lanata*. It is absorbed to the extent of about 75 per cent from the gastrointestinal tract, is relatively quickly eliminated from the body and has been the drug of choice in both hospital and private practice. In very urgent cases 0.5 to 1 mg. diluted with 10 c.c. saline given slowly intravenously, produces ventricular slowing in 30–60 minutes. But intravenous injection should not be given if the patient had any digitalis during the preceding 10 days, if the ventricular rate is below 140 per minute and if the patient cannot be kept under observation in bed. In other cases an initial oral administration of 1 mg. is followed by 0.25 mg. 6 hourly. During the present investigations the digitalising dose of digoxin has been almost the double of Digitoxin and the maintenance dose two tablets of 0.25 mg. daily.

Cedinalid (Sandoz) is a pure crystalline lanatoside C, isolated from *digitalis lanata*. It is completely absorbed from the gastrointestinal tract and is characterised by a particularly high therapeutic index, the margin between therapeutically effective and toxic doses being greater than for any other digitalis glucoside. Evans *et al*⁵ reported better results with Cedinalid in a dose of 1.5 mg. than with any other preparation when used intravenously. In the opinion of Friend⁶, Cedinalid has all the advantages and none of the disadvantages of Strophanthin in emergencies. We have used Cedinalid only orally during our present investigations and found the digitalising dose even more than digoxin. We agree with East and Bain² that digoxin is superior to lanatoside C for maintenance.

Toxic effects.—The most common manifestations of digitalis intoxication are frontal headache and anorexia followed by nausea and vomiting. Vomiting which occurs shortly after a dose of digitalis is very likely not caused by the drug and may even be treated by digitalis, if due to portal congestion in heart failure. Another important manifestation is the appearance of ventricular premature beats. Less frequently diarrhoea, disturbances of vision (yellow vision), mental apathy, depression or psychopathic outbreaks appear. Prolonged P-R interval in electrocardiogram appears even from therapeutic doses but higher degrees of heart block are an indication to withhold the drug temporarily. Ventricular tachycardia with ventricular fibrillation are rare but serious manifestations of digitalis intoxication.

Diuretics.—To produce efficient diuresis should be the constant aim in every case of heart failure. There is adequate recent evidence

which indicates that oedema is not only an unpleasant symptom but may actually aggravate the disease process. Through diuresis the heart is relieved of the added burden of propelling the blood through the compressed blood vessels, the blood volume is decreased and in all probability the efficiency of the heart is increased by loss of oedema from the myocardium, kidneys and other organs. It is not always appreciated that pulmonary congestion responds as well to diuretics as does peripheral oedema. Patients with left ventricular failure with orthopnoea and nocturnal dyspnoea may expect to have considerable diuresis and great alleviation of symptoms.

There are several means of promoting diuresis. Rest and digitalis alone by improving the circulation may cause oedema to disappear. Restriction of the intake of fluid and of salt and administration of vitamin C are often helpful in relieving congestion by producing diuresis. If the congestion or oedema is extensive it is best to employ diuretic drugs in addition to digitalis. They should be supplementary to and not in replacement of digitalis, except perhaps in children with congestive failure secondary to acute rheumatic myocardial disease. The traditional method of using diuretics when patients no longer respond to digitalis is now replaced by simultaneous use of digitalis and mercurial diuretics given systematically. This reduces the period of hospitalization to one third and it produces more complete recovery from congestive failure.

Mercurial diuretics like neptal, mersalyl or salyrgan are the drugs of choice 1 c.c. is injected on the first day to test the individual for possible idiosyncrasy and then subsequently 1½–2 c.c. given biweekly or weekly. Now-a-days a maintenance dose of the drug is also given as in digitalis, it may be once a month or fortnightly. The intravenous method (diluted with 10 c.c. glucose or saline) is painless and produces greater diuresis. Intramuscular injections cause a sharp stinging pain for about 15 minutes. Suppositories are irritating and tablets have not proved satisfactory in our experience. Preliminary administration of acidifying salts (ammonium chloride gr. 20 t.i.d. on the day of injection and the preceding day) enhances the effect of mercurial diuretics. The only important contraindications are gross hematuria or marked renal insufficiency as evidenced by the blood urea level (above 60 mg. per 100 c.c.) Albuminuria, which is often due to heart failure *per se*, is not however a contra-indication. The toxic reactions like mercurialism, anuria and sudden death have been over-emphasized and are extremely rare when we consider their extensive successful use in a large number of congestive failure cases. Evans⁴ has drawn attention to two precautions in the treatment with mercurial diuretics. The first concerns cases of heart failure in whom the diuretic response which was previously good begins to fail and oedema increases; in such patients the drug should be decreased rather than increased for a time. The second applies to oedema of renal origin; intravenous injections

should be withheld in these cases, until a good diuretic response has been obtained in the first instance by intramuscular injection.

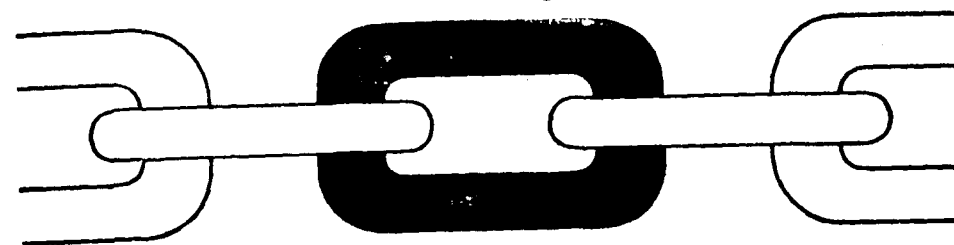
The only other diuretics to be considered are theophylline, aminophyllin and cardophyllin. The intramuscular route is very painful. Ampoules of 10 c.c. containing 0.24 gm. diluted with 10 c.c. redistilled water given very slowly intravenously, act as a diuretic, cardiac stimulant and also cause a relaxation of veins. Although their use as a diuretic has been superseded to a certain extent, by mercurial derivatives, they are indispensable when the latter are contraindicated, e.g., in gross kidney damage.

Mechanical measures.—Venesection:—There are two main indications for venesection: (1) acute left sided failure with acute pulmonary oedema, severe dyspnoea, and pronounced pulmonary congestion; as an emergency measure venesection may be lifesaving. (2) Right sided congestive failure with pronounced distension and tension of jugular veins, cyanosis and severe dyspnoea. East and Bain² point out that when venous pressure is very high, the pressure in the right auricle may even be higher still during part of the cardiac cycle causing the column of blood to move backwards and forwards. In these circumstances digitalis and diuretics are useless and nothing but a substantial venesection will save the patient from imminent death. Only obvious anaemia and a low blood pressure contraindicate its use. Rapid bleeding of 10 to 20 ounces (by inserting a French's bleeding needle into one of the antecubital veins after application of a sphygmomanometer armlet inflated to a pressure of 60 mm. Hg.) lowers venous pressure promptly and profoundly.

Paracentesis:—When rest, digitalis, diuretics and other measures fail to relieve ascites or hydrothorax and oppression from the fluid is disagreeable, mechanical drainage should not be delayed. This is specially important in hydrothorax because of greater embarrassment of the already difficult breathing and because fluid is absorbed more slowly from the pleural than from the peritoneal cavity. At times digitalis and diuretics become more effective following the removal of fluid from any of these parts.

After-care.—The aim of after treatment of cardiac failure is to shorten the period of convalescence and to put the heart in the best state subsequently, to maintain the circulation for as long a time as possible. Every patient needs individual care and, like a diabetic, he should be educated to take care of himself as far as possible. He needs periodic supervision, readjustment in his hours of rest and work. Massage is beneficial followed by graduated exercises but not to the point of exertion. Obesity, anaemia and focal sepsis, if present, are to be corrected. The patient is instructed with regard to fluid restriction and maintenance-dose of digitalis and diuretics, especially, when he has a tendency to recurrent oedema.

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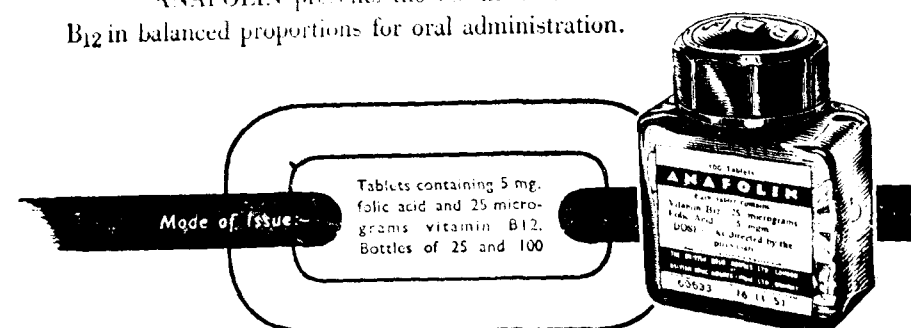
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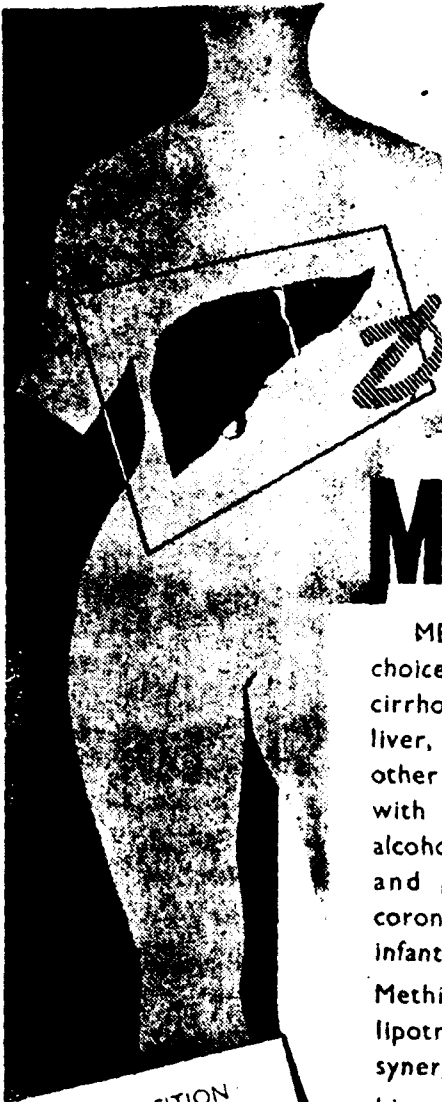
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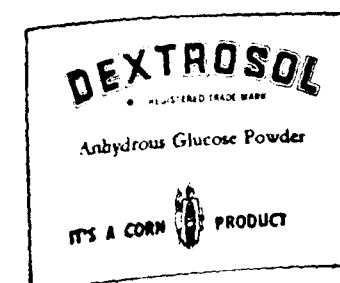
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References:

1. Beckman—Treatment in General Practice, Saunders, 1948 Ed.
2. East, T. and Bain, C.—Recent Advances in Cardiology, J. A. Churchill Ltd., London, Fourth Edition, 1948.
3. Eggleston, C.—Congestive Heart Failure, Cecil's Text Book of Medicine, Saunders, Seventh Edition.
4. Evans, W.—Cardiology, Butterworth & Co., London, 1948.
5. Evans, W., Peter, D., and Evans, B.—Rapid Digitalisation, British Heart Journal, 10, 103, 1948.
6. Friend, A. G.—Treatment of Congestive Heart Failure, Worth West Medicine, Seattle, 40, 53, 1941.
7. Gold, W.—J. Pharmacol. & Experimental Therap., 32, 187, 1944.
8. Katz and Wise—Congestive Heart Failure, Am. Heart, J., 30, 125, 1945.
9. Lewis, T.—Diseases of the Heart, Mac Millan & Co. Ltd., London, Second Edition, 1937.
10. Mathur, K. S.—Vitamins and their Relation to Cardiovascular Diseases, The Antiseptic, June, 49, 1949.

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The Role of Ketone Bodies in the Etiology of Diabetic Coma

In a report on an investigation carried out by Dr. Fisher of the Diabetic Coma Project of the Philadelphia General Hospital, on the specific cause of diabetic acidosis and coma, that result from uncontrolled diabetes mellitus, the following conclusions have been reached: (1) Acidosis *per se* does not seem to be the main cause of coma in diabetic acidosis, though it probably plays an important role in the production of symptoms. (2) It is highly improbable and unlikely that the ketone bodies are the primary cause of the clinical picture of coma. Their presence indicates metabolic derangements without particular toxicity in themselves, just as the blood urea is a nontoxic indicator of uremia. (3) Many factors contribute to the clinical appearance and prognosis of the patient in diabetic acidosis. These probably include the degree and duration of acidosis and ketosis, the severity of the diabetes, the age and general health of the patient, the complications existing, the serum-potassium concentration and others. (4) It is probable that there is some potent agent, as yet undiscovered, that may be the dominant factor in diabetic coma.—(*Am. Jour. Med. Sciences*, 221, 4, 1951).

The Treatment of Various Infections with Terramycin

Caldwell *et al* record the results of treatment with terramycin of 171 patients with various infections. Terramycin hydrochloride was given to adults in doses of 2.0 gm. initially followed by 0.5 gm. every 4 hours. Children received 50 mg. per kg. of body weight per day. The treatment was effective in 46 out of 48 patients with pneumococcal pneumonia, 14 with streptococcal infections, 7 with urethritis due to gonococci, 7 out of 12 with other urinary tract infections, 3 with Vincent's infection, one case of Herpes Zoster out of a total of 59 virus-infection cases and in 22 other miscellaneous cases. There were no severe toxic reactions, though 42 patients had mild gastric disturbance. One patient had vertigo. In seven cases, the drug had to be discontinued in view of gastric intolerance, as revealed by vomiting.—(*Jour. Lab. Clin. Med.*, 36, 747-753).

PRESENT STATUS OF CHEMOTHERAPY IN CERTAIN MALIGNANT DISEASES

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ATTEMPTS made from a very long time to discover some chemotherapeutic drugs which would arrest malignant diseases were not very successful until recently when some carcinolytic compounds have been found to be useful in the palliative treatment of malignant conditions. They afford only temporary relief.

The word chemotherapy used in this paper is not intended to convey the impression that a specific chemotherapeutic agent like Salvarsan for syphilis has been discovered. The cause of syphilis, the spirochæta pallida, the mode of infection and the complete general pathology relating to syphilis, had come to be properly understood and so the specific treatment was an accomplished fact. But as regards malignant disorders we are still completely in the dark about their causation, though we believe that certain predisposing factors such as chronic irritation, ulceration etc. are associated with malignancy. Apart from these, we do not know why a group of cells multiply unlimitedly, unless they are ablated by surgery or by irradiation or under what circumstances these normal innocent cells become abnormal malignant ones.

The word chemotherapy is therefore, here used in an empirical sense, as we are completely in the dark about how these drugs act and actually retard the growth of malignant cells. I propose in this paper to review the present state of our knowledge of the value of chemotherapeutic drugs in malignant conditions. This will enable us to give palliative treatment to patients who despair of a cure or at all events give them symptomatic relief for a temporary period, till they actually succumb to the disease.

Two groups of substances:—Dodds¹ classified carcinolytic substances into two groups:—

(1) Those substances which do not affect the cancer itself, but which create a background in the host, that is not favourable to the growth of malignant tumour or that is akin to the bacteriostatic action of some drugs in certain bacterial infections.

(2) Those substances which produce a directly lethal action on the malignant cells, in preference to the host cells. This action resembles, the specific bactericidal action of chemotherapeutic drugs in bacterial infections.

A typical example of the first group is stilboestrol used in the treatment of cancer of the prostate. The principle underlying its use is that, by cutting off of the gonadotrophic hormone of the anterior pituitary to the testis, the secretion by the testis of androgens or the male sex hormone is arrested. The carcinoma of the

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prostate is therefore, unable to flourish in a background that does not contain androgens. Stilboestrol, a synthetic female sex-hormone, which has the opposite action to androgens, therefore, exerts a beneficial effect on cancer of the prostate, not by directly acting on the tumour, but by altering the environment of the tumour into a very unfavourable one.

In the second group, are included substances which possess a cytotoxic action. It is now known that a number of chemical substances have the power of hindering cell-division. Several drugs in this group are capable of inhibiting not only the division of malignant cells, but also of the normal cells of the body; such drugs cannot obviously be used on any patient. A few drugs have recently been isolated, which can be used in animals and also in human beings with some margin of safety. Important among them are:—(1) Nitrogen mustard; (2) Urethane; (3) Aminopterin and other allied antifolic compounds.

A brief description of the use of these substances will be given below:—

A. Hormones.—(1) *In cancer of the prostate:*—Huggins and his associates of Chicago made an exhaustive study of the physiology of the prostate in 1939 and found that oestrogens or the female sex-hormones such as stilboestrol, had the remarkable power of controlling cancer of the prostate. Survivals of 5 years or more among patients treated by this type of therapy are not uncommon. They also observed that castration or bilateral orchidectomy had almost the same action on the cancer of the prostate as stilboestrol. According to Nesbit *et al*² combined treatment with castration and administration stilboestrol is most effective in giving a 5 years' cure. Their study was based on the collective experience gained by several surgeons of U.S.A. in a comprehensive survey of 1818 cases treated with stilboestrol. They also observed that when metastasis was present in some bones or other organs, simple bilateral orchidectomy was more effective than stilboestrol therapy alone or a combination of the two.

It is quite evident that the above treatment does not effect a complete or radical cure of the disease but it produces so much remission in the growth-activities that in about 50% of the cases a 5 years' cure can usually be obtained. In some cases the period of remission may last longer. Thus, Nesbit *et al*² have reported the case of a patient who developed wide-spread metastatic activities in the spine with resultant complete transverse myelitis. By a simple bilateral orchidectomy, he regained the use of legs, and remained clinically well for seven years. Haddow³ has emphasised the need for further investigations to confirm these views.

Method of administration:—Some synthetic oestrogen, like stilboestrol is the drug of choice for treating this condition. The usual

dosage is 1 mg. three times a day by mouth, followed by a gradual increase in the dosage up to 5 mg. three times a day for a variable number of weeks. An adequate maintenance dosage is then determined, based on the condition of the growth and the general improvement in the patient's condition. The maintenance dose should not ordinarily be less than 1 mg. three times a day and should be continued for the rest of his life.

Prolonged treatment with stilboestrol, usually produces some side-effects, such as testicular atrophy, impotence, enlargement of the breast and pigmentation of the nipples. These should not however, deter a patient from continuing the treatment. If serious toxic reactions occur, stilboestrol may be replaced by some other preparation of oestrogen, e.g., dienestrol.

(2) *In cancer of the breast*:—In the early stages of this condition when the disease is localised, surgery still holds the foremost place. In order to make sure that all the metastatic glands have been removed a supplementary course of deep X-ray therapy may be given and it will ensure a 5 years' cure in the majority of cases. In advanced cases with multiple metastasis in the bones, viscera and skin, there were no remedies so far to control them. Such patients had to rue their fate. The use of hormones has however, now completely altered the entire outlook of these desperate patients; the hormones are able to produce a remission of symptoms in these patients for considerable periods of time varying from a few months to a few years, although they do not effect a cure.

(a) *Androgens*:—Generally androgens, e.g., the testosterone propionate are used for this purpose. Haddow³ found it to be especially effective in patients who have not reached the menopausal stage. Cade⁴ however states that it can be used on both pre- and post-menopausal cancer of the breast with beneficial results. The most striking response to this treatment usually occurs when there are metastases in the bones. A few days after starting this treatment the pain subsides and re-ossification of the osteolytic lesions occurs. Many of the visceral and cutaneous metastases respond well to this treatment in the majority of cases.

DOSAGE.—Haddow³ suggests that intramuscular injection of 100 to 150 mg. of testosterone propionate should be given thrice weekly for about 8 to 10 weeks, followed by a maintenance dose of 150 mg. intramuscularly once a week. The latter procedure can however, be replaced by the implantation of 1000 mg. androgen pellets into the deep fascia of the anterior abdominal wall every six months.

Some side-effects occasionally develop by this treatment and they are more pronounced in the younger patients. They are hirsuties, suppression of menses, change in the voice, enlargement of the clitoris, masculinization of the outlook etc. The treatment should still be continued in spite of such side effects.

(b) *Oestrogens*:—Even oestrogens are sometimes found useful in treating cancer of the breast. Haddow³ advocates the use of these only in patients who are over 60 years of age. They should certainly not be used to treat patients who have not completed at least five years after their menopause. Otherwise oestrogens will have the opposite of the desired effect, resulting in an acceleration of the growth. Oestrogens are particularly useful in pulmonary and skin metastases. Secondary ulcers in the skin heal quite rapidly and pleural effusions do not reaccumulate after aspiration. It has little or no effect on skeletal metastasis. Similarly oestrogens have no effect on cancer of the male breast; in such cases bilateral orchidectomy yields better results. The dosage of oestrogens is already given *supra*, under cancer of the prostate. And it is being further considered by several workers all over the world.

(c) *Effect of oophorectomy on cancer of the breast*:—Raven⁵ reported an interesting case of a woman aged 50 years who developed a lump in the breast with metastatic lumps on the skin of the whole body including the face and neck. These lumps used to enlarge just before menses and then recede. Raven considered that there may be some relation between these tumours and the patient's menses. A biopsy on one of these tumours revealed squamous-cell-carcinoma of the breast. Since local excision was out of the question, he performed a bilateral oophorectomy and to his great surprise, all the lumps disappeared from her body within six months. We have experience of only one case who had advanced cuirass-cancer of the breast with pleural effusion and questionable pulmonary metastasis. Three months after the local excision of the tumour, she had bilateral oophorectomy and to our surprise the pleural effusion did not reaccumulate in the chest; she is leading a normal life now one year after the above treatment. Bilateral oophorectomy is therefore, of great value in the management of breast-cancer but only in cases where the tumour appears in the pre-menopausal period. Some people advise the routine use of this treatment in all the pre-menopausal cancers of the breast from the prophylactic point of view, in addition to the routine classical treatment. But studies have shown that oophorectomy in the early ages does not preclude the possibility of cancer developing later in life; hence the routine use of this procedure is not advocated in all cases.

It has also been observed that in doubtful cases of metastasis, irradiation of the ovaries by deep X-ray therapy applied to the lower abdomen, produces almost identical results as oophorectomy. Still, when one wants to be absolutely certain of results oophorectomy, by surgical means should be preferred. Even after oophorectomy, whether by irradiation, or by surgery, a few women continue to pass oestrogens in the urine; in such cases androgens must be given by injections to counteract the oestrogens. All these procedures effect

considerable remission in the tumour and prolong the life of the patient.

B. Other substances.—(1) *Nitrogen mustard*.—Reinhard *et al*⁶ have fully discussed the value and status of Nitrogen mustard in the treatment of certain malignant diseases and I will briefly review the same for the information of others interested in this subject. In World War I, considerable work had been done on the toxicology of mustard gas. It was then used mainly a vesicant in many inflammatory diseases, and found to produce leucopenia owing to its specific action on bone marrow.

During World War II, extended researches were carried out on various synthetic compounds, including Nitrogen mustard. These compounds were found to exert a specific nucleo-toxic action by interfering with the chromosomal mechanism, in a manner somewhat similar to the effects of deep X-ray therapy. The susceptibility of the cells to the action of this drug depend upon the rate of cellular multiplication and hence it has greater action on the bone marrow, lymph glands, etc., where cellular activities are usually great, even under normal conditions.

Clinically it has a striking effect on lymphadenomas of Hodgkin's disease, and lymphosarcomas. It has also some effect on chronic leukæmias and on the anaplastic type of cancer of the lung. It usually affords relief to patients for from 6 months to one year; and for this reason, this treatment should be adopted *only* if the deep X-ray therapy fails to give the required relief or when it could not be given owing to high fever, etc. Treatment by this drug only postpones death by some months but does not permanently arrest the disease.

DOSAGE.—The drug should be administered intravenously in a freshly prepared aqueous or saline solution. Haddow³ suggested the following dosage for therapeutic use :—

0.1 to 0.2 mg. per kilogram of body weight or about 6 to 12 mg., for an average adult is administered intravenously either daily or on alternate days. The average total dose for a single course comes to about 25 mg. After completion of the first course, this drug may be given at fortnightly intervals in doses of 0.1 mg. per kilogram of body weight. The most frequent side-effects are nausea and vomiting. The patients should be warned about it before hand.

(2) *Urethane*.—This drug was first tried on certain malignant diseases by Haddow in 1946. It was found very effective in chronic myeloid and lymphatic leukæmias and its effect is very similar to that produced by X-ray therapy. The advantage of this drug is that, it is effective even in cases where the X-ray therapy has failed or is no longer useful. It also produces regression in the swelling of multiple myeloma, giving great relief from the pain associated with this condition.

DOSAGE.—It may be used orally, intramuscularly or intravenously. One gramme thrice a day is the usual dose by mouth. A 40% solution is used for intramuscular injection where required and 1 to 2 gm. dissolved in 20 c.c. of sterile saline solution is the dose for intravenous use. The important side-effects are :—nausea, giddiness, gastrointestinal irritation etc.

(3) *Folic acid antagonists (Aminopterin)*.—In 1947–1948, Farber and others⁶ chanced to observe that the administration of folic acid or its derivatives intensified the severity of acute leukæmias. It was therefore, naturally felt that substances which physiologically had the opposite action of folic acid, would have a beneficial effect on the acute leukæmias. Farber⁷ first used Aminopterin clinically in 16 children, 10 of whom showed temporary clinical and hæmotological improvements. It had practically no effect on any other condition except acute leukæmia. Even in this latter disease the remission obtained was incomplete and of comparatively short duration lasting from a few weeks to some months.

DOSAGE.—The dosage of Aminopterin is 1 to 3 mg. daily by the intramuscular or oral route. The most important toxic symptoms are stomatitis, buccal ulcerations, purpura, increased tendency to bleed, lymphopenia, thrombocytopenia, etc.

C. Radio-active isotopes.—These are entirely new weapons for treating certain types of cancers, and they came into prominence only after the termination of World War II, when various investigations on the use of atomic energy for civilian purposes were started in U. S. A. At present only two substances, namely radio-active Iodine and Phosphorus are in clinical use. Radio-active iodine has been found to be very useful in the isolated metastatic lesions of carcinoma of the thyroid, and its usefulness is greatly enhanced if the primary growth of the thyroid is previously removed completely by surgery. Similarly radio-active phosphorus has been found to be very useful in cases of lymphatic leukæmia. These are however, still in the experimental stage and further reports should be awaited before this method of treatment can be adopted for general use.

Summary.—1. Chemotherapy of malignant disorders is still in its early stage of investigation, and their use is at present limited to affording relief to selected patients suffering from these diseases.

2. Two groups of substances are in use—one which changes the environment of the tumours *e.g.*, the sex hormones and the other which acts directly on the malignant cells *e.g.*, nitrogen mustard.

3. At present cancer of the prostate and advanced cancer of the breast with their metastases, are treated by female and male sex-hormones respectively. These treatments usually produce spectacular remissions in the metastatic growths. Bilateral orchidectomy

and oophorectomy give almost identical results in cancers of the prostate and breast respectively.

4. The substances belonging to the second group are very few, that could safely be used on patients, e.g., Nitrogen mustard, Urethane and Aminopterin. They are used at present in the treatment of Hodgkin's disease, lymphosarcoma and the various types of leukaemia.

References:

1. Dodds, E. C.—Chemotherapy in the Treatment of Malignant Disease. B.M.J., 2: 1191—1193, 1949.
2. Nesbit, P. M. and Baum, W.C.—Endocrine Control of Prostatic Carcinoma, J. A. M. A., 143: 1317—1320, 1950.
3. Haddow, A.—The Chemotherapy of Cancer. The Practitioner, 167: 36—47, July, 1951.
4. Code, Stanford—Chemotherapy in the Treatment of Malignant Disease. B.M.J., 2: 1193—1196, 1949.
5. Raven, R. W.—Cancer of the Breast Treated by Oophorectomy, B.M.J., 1: 1343—1345, 1950.
6. Reinhard, E. H., Good, J. T., and Martin, E.—Chemotherapy of Malignant Neoplastic Diseases, J. A. M. A., 142: 383—390, 1950.
7. Farber, S.—Quoted by Reinhard et al (see 6 above).

Penicillin and Streptomycin Therapy in Paediatrics

The author, a renowned paediatrician of the U.S.A., made a comparative study of penicillin and streptomycin in the treatment of children. Procaine penicillin G is considered more useful, owing to its ease of administration; safety and reliability, in treating children. It can be used very effectively with sulphadiazine and other antibiotics. Aqueous penicillin G, (sodium or potassium) given in large doses at intervals of from 3 to 12 hours, is particularly valuable in the more serious infections. Oral penicillin should be used only in mild infections and penicillin should *not* be used locally for skin therapy. Penicillin is quite effective in treating congenital syphilis. In paediatrics streptomycin is the drug of choice to treat tuberculosis; also certain gram-negative bacillary infections including *B. proteus vulgaris*, *B. pyocyaneus* and plague. It is generally used in influenzal meningitis. It may also be substantially useful in certain cases of pertussis, *E. coli* and shigella infections, often in combination with other antibiotics. In treating tuberculous meningitis in children with streptomycin, it is desirable to use PAS and promizole as well.—(Soule, H. C., *New York State Jour. Med.*, 51, 228-33, 1951).

Haemoptysis and the Diurnal Variation in the Vital Capacity

Dissmann found that the vital capacity of tuberculous patients showed a rhythmic diurnal variation. The vital capacity is least, i.e., the lungs contain most blood, as a rule between 6 p.m. and 9 p.m. and again between 6 a.m. and 9 a.m. haemoptysis was found to occur more frequently within these hours than at other times.—(*Acta. Tubercul. Scandinavia Fasc. III-IV*, 1951).

MANAGEMENT OF ABORTIONS

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THE loss of blood and the feeling of pain are two factors which upset the mental poise of even strong persons. Vaginal bleeding and abdomino-pelvic pain, when associated with early pregnancy, frequently make an *enceinte* woman seek medical advice. Women who have had several full-time normal childbirths, without medical aid are obliged to seek some kind of medical help when threatened with abortion because it is often unexpected and starts with bleeding and considerable pain.

Abortion usually means the expulsion of the product of conception during the first three months of pregnancy before the child is viable, and the expelled product is called an 'abortus'. But this term has gradually come to include all interruptions of pregnancy before independent viability of the foetus, the limit of which is usually regarded as the twentyeighth week; but the consensus of opinion based on the available scientific knowledge favours a lowering of this limit to the twentysixth week. Amongst the lay public, there is an unfortunate confusion about the terms "miscarriage" and "abortion." They very often use the term "abortion" to stigmatise censoriously an induced abortion implying criminal intent. Although medical terminology does not differentiate between spontaneous and induced abortions, they can be classified into three groups:—unrecognised, induced and spontaneous. The frequency incidence, and the total number of abortions are always difficult to determine accurately as there is a tendency to keep these secret. Several attempts have been made in the past to work out the frequency of abortions in society. The studies of Taussig (1936) and of Macomber (1920) show an incidence of 27 per cent. of live births. Wiehl (1938) computed a 12 to 17 per cent. incidence in her report on morbidity surveys. If it is assumed that of these abortions, two-thirds are induced and only one-third spontaneous, it may be suggested (Rock) that about 8 per cent. of recognised pregnancies terminate in spontaneous abortion. On the other hand, a study of 3,592 cases of abortion by C. Tietze in New York during the five year period 1943-1947, showed that the abortion ratio was about 5.1 per 1000 live-births or about 4.7 per 1000 of known pregnancies. These figures are about the same as those recorded in Sweden and Denmark, where compulsory reporting of all abortions has long been in active force. It is interesting to note that Davis (1950) in his assay of 2,665 cases of abortion from two hospitals in a working-class suburb of London, found that about 90 per cent. of the cases were probably induced and that the incidence of spontaneous abortion was very low. While many of us cannot agree with his conclusions, it has to be admitted that a large

proportion of abortions that occur (many of which never come to light) are induced, not always on strictly ethical considerations.

Apart from the induced ones, quite an appreciable number of spontaneous abortions occur in every country. It is only natural to try to find the causes for such big losses in human embryos. An abortion may be caused by extrinsic or intrinsic maternal causes, and it may also be due to foetal causes with intra-ovular defects. Attention has during the last few years been focussed on two maternal causes:—(1) Psychogenic, like profound fear, anger or severe mental shock, e.g., the numerous cases of abortion that occurred in England during the German "Blitz" during the Second World War; and (2) the effects of an attack of rubella or German measles during the first three months of pregnancy causing abortion and foetal deformities, as shown by Swan and several other workers. Of the foetal causes of spontaneous abortions, the works of Tietze and his associates (1950) Wall and Hertin, Kæser and several other workers indicate that defective germ-plasm is perhaps the commonest cause of abortion, this has also been known to retard or delay conception in many cases. Grosser, maintains that as many as one-third of the fertilised ova die prematurely (many of them ending in abortions) and that malformations are found in half the foetuses and embryos expelled. Kæser studied 606 abortions at the Women's Clinic in the University of Basel and found that in 35.4 per cent. of the cases, the cause was ovular, in 29.6 per cent. maternal and in 10.6 per cent. uncertain. Kæser maintains that one half of all spontaneous interruptions of pregnancy during the first six months are caused by developmental disturbances of the ovum. Wall and Hertig found pathologic ova in 62 per cent. of 58 cases studied by them. These observations seem to indicate that, in a large proportion of cases, the occurrence of spontaneous abortion is only one of Nature's methods of limiting the births of deformed and monstrous babies.

These facts based on the newer knowledge, however, give rise to other difficult problems. For, if the above conclusions are to be accepted as they are meant to be, most cases of abortion in the early or threatened stage should go on to the later stages of incomplete or complete abortion, despite treatment. And this tallies fairly well with Indian experience. Moreover, because of this uncertainty of the ultimate outcome in any particular case, it is natural to anticipate the end-result, in order to be able to undertake suitable treatment for those cases only in which the pregnancy is likely to result in salvage of a healthy foetus; vigorous treatment may be given to the patient whose foetus is malformed and hence an abortion is not merely a certainty but a desirability as well. Such a procedure will naturally save time, money and mental anguish. To this end, many observers have carried out different tests on women with threatened abortion and collected interesting data. It

Recent observers have brought to our notice that the dosage of the luteal hormone formerly in use is extremely inadequate and not likely to yield good results, and that to obtain satisfactory response with progestin therapy in threatened abortion, very much higher doses must be given. Guterman and Tulskey have recently reported good results in a few patients with daily injections of 80 to 120 mg. of progestin which they consider as adequate. Davis and Fugo (1950) report that, that less than one-third of injected progesterone is reflected in pregnanediol excretion in the urine, which is normally about 16 mg. per day in early pregnancy, gradually rising to 40 or 50 mg. pregnanediol each day in mid-pregnancy. Hence it is likely that 3 to 4 times this amount of progesterone is available in the circulation for utilisation by the patient. It is thus evident that supplementary extraneous progesterone therapy by injection is not likely to be effective if less than 50 to 100 mg. per day. It is obvious that these very large doses, are expensive and somewhat uncertain in their end results.

Oestrogenic therapy has been, advocated by a number of workers and fairly extended trials have been given to this form of therapy because of the availability of orally active synthetic oestrogens at small cost. Karnaky (1942) first showed the empirical usefulness of diethylstilboestrol in abortions, and this therapy was later on placed on a rational basis by Smith and his associates. Karnaky (1951) reports a foetal salvage rate of 76 per cent. in a series of 21 threatened abortions. The dosage advocated by Karnaky is based on the severity of the symptoms in threatened abortion, and the quantity required for a given patient is that which stops cramps, spotting, bleeding and pain. In mild cases Karnaky gives 100 mg. stilboestrol by mouth every 15 minutes until the symptoms are relieved, then 25 mg. three times a day for one week, and after that 25 mg. every morning till the eighth month of pregnancy. Slightly higher doses are used in moderate cases and for severe cases Karnaky gives 250 to 500 mg. by injection into the gluteal muscles along with 250 to 1000 mg. by mouth every 15 minutes until the symptoms are relieved, then 250 to 500 mg. are given intramuscularly every third day for 2 to 4 weeks. In additions, he would give 100 mg. by mouth four times a day for 2 weeks more, then 25 mg. twice daily for 2 months and later 25 mg. daily until the eighth month. Karnaky advocates a nourishing diet including adequate vitamins and minerals, but does not consider bed-rest a necessity except in special cases. The mode of action of stilboestrol in producing beneficial effects in such cases, is not yet clearly understood. Smith and Smith have maintained that stilboestrol administration stimulates production of progesterone, the oestrogen and the progesterone then acting together to increase myometrial and vascular growth of the uterus and thus improving the endometrium to such an extent that pregnancy progresses normally

Disturbed ectopic pregnancy must be remembered as a possibility in all cases, where the patient presents herself with amenorrhœa of 6 to 10 weeks' duration followed by vaginal bleeding and pelvic pain, particularly if the pain is confined mainly to one side out of all proportion to the amount of visible external bleeding, and is also accompanied by a generally collapsed condition. Although it may give a good deal of information, a vaginal examination need not be undertaken in every case; *e.g.*, a young married woman in the sexual period of her life, and specially if parous, who has been quite regular with her periods before, and who is usually in the "threatened" stage of an abortion when she comes complaining of slight pelvic pain and vaginal bleeding following a sudden and short period of amenorrhœa. On the other hand a vaginal examination would be necessary if the patient complains of severe pain or excessive bleeding either at one time, or a slight hæmorrhage continuing for a long time, or even if the bleeding occurs frequently at repeated intervals. The vaginal examination should take note of the size, shape, contour, consistency and behaviour of the uterus; the condition of the cervix particularly of the os; possibility of feeling the conceptus in the uterine cavity, in the cervical canal, or even in the vagina. A careful analysis of the history and a thorough examination of the patient conducted along the above lines would enable the practitioner to diagnose not only the fact that an abortion was in progress but also to find out at what stage the abortion was at the time of examination—threatened, inevitable, incomplete or occasionally a completed abortion.

The management of a case naturally depends upon the stage of the abortion. If it is a completed abortion, nothing active need be done except to reassure the patient that the worst was over and that she would soon be all right; a dose of some oral preparation of Ergot (*e.g.*, one tablet of Erbolin or Neo-gynergen) may be given along with a mixture containing alkalis and bromides to soothe her jaded nerves and to induce restful sleep. A patient who has bled a great deal (either in a smart bout or through prolonged or repeated hæmorrhages) must be presumed to harbour a dead ovum and most likely to be in the stage of incomplete abortion. Such a patient obviously requires an evacuation of the uterus to stop further bleeding and consequent damage to health. This evacuation of the uterus has to be done very carefully under strict aseptic precautions. In the presence of copious bleeding evacuation has to be undertaken as early as possible. The uterus should be invaded with full aseptic precautions and the ovum detached from the uterine wall by the gloved index finger of the right hand while the left hand over the abdomen is used to depress the different areas of the uterine fundus and thus make the corresponding fundal area available for exploration by the right hand fingers inside. The cervix should be dilated by metallic dilators (preferably of the Hawkins-Ambler type) if necessary, and the whole operation

performed quickly, but carefully under complete general anæsthesia; this may be inhalational like ether or chloroform or more conveniently by a quick-acting intravenous anæsthetic (like Pentothal sodium, 0.5 gm. dissolved in 10 c.c. of pyrogen-free sterile double-distilled water) administered very slowly and carefully. If some delay is involved in making arrangements for the surgical evacuation, the patient should be promptly given an injection of morphine gr. $\frac{1}{4}$ and atropine 1/100 and arrangements made for resuscitation of the patient by intravenous injections of glucose 25%, 50 to 100 c.c., followed by a drip infusion of glucose-saline, *e.g.*, from ready-sterilised bottles supplied by reliable firms. The patient should be kept well-covered and warm, if necessary with blankets and hot water bottles. Calcium gluconate 10% solution 10 to 20 c.c. and vitamin C 500 mg., may be added to the intravenous medication with advantage. The foot-end of the bed should be raised and oxygen administered if there are signs of severe blood-loss with anoxæmia and air-hunger. In cases where evacuation of the uterus has been considered necessary because of long-continued bleeding, the circumstances are often not urgent, and two to four days' time may then be usefully spent in recouping the patient's general health, completing the necessary laboratory examinations (of blood, urine, etc.) and in improving the patient's body-resistance by one or more transfusions of fresh whole blood, (250 to 500 c.c. being used at each sitting depending upon the circumstances). In cases where the general condition of the patient is very low and a blood transfusion is considered desirable but not practicable owing to various difficulties, improvement may be had by an intravenous transfusion of blood plasma (reconstituted from bottles of dried human plasma with bottles of sterile re-distilled water or of the blood-substitutes "Dextran" or "Intradex" now available in the market). In all such cases, where exploration of the uterus has been undertaken because of incomplete abortion, sepsis has to be considered as quite a possibility and should be forestalled by liberal doses (1 lac units 8-hourly or 2 lacs 12-hourly) of Penicillin and Sulphadiazine, 2 tablets 4-hourly. These drugs may be stopped after the patient has remained afebrile for three days. It often happens that a practitioner is called on to deal with a patient who has been very much run down from long-continued (or repeated slight bleeding following a short period of amenorrhœa, whose case-history and the general examination are strongly suggestive of an incomplete abortion; but the patient is perhaps too ill to undergo even a slight surgical interference. In such circumstances, even a vaginal examination may often be wisely withheld for 3 or 4 days or even longer and strenuous efforts made to improve the general condition of the patient, particularly the anæmia by intensive treatment. Most of these patients suffer from secondary anæmia requiring iron therapy rather than injections (so often resorted to) of extracts of liver; and a blood examination should be made to determine the type of anæmia and the

treatment necessary therefor. If microcytic hypochromic anaemia is present, the patient should be given intravenous iron (e.g. "Iviron" or "Ferrivenin") in doses, of 100 mg. daily. Patients with a mixed blood picture should be given whole-liver extracts daily in big doses by deep intramuscular injection.

Patients suffering from inevitable abortion do not usually present a difficult problem. Most of them quietly complete the process of abortion themselves, helped by rest in bed and suitable sedatives and, if necessary by an injection of morphine gr. $\frac{1}{4}$ with atropine gr. $\frac{1}{100}$; patients who have become excited or nervous at the sight of blood need this treatment particularly. Occasionally the bleeding may be so alarming or the pain may become so distressing, that the uterus may have to be immediately evacuated by exploration under general anaesthesia as outlined above. Some authorities advocate the administration of repeated small doses of posterior pituitary extract or of some injectable preparation of ergot with a view to helping the uterus to expel its contents completely in cases of inevitable or incomplete abortions. While admitting that such a course of action may avoid intra-uterine surgical manipulation in some cases, we consider that the digital exploration of the uterus under general anaesthesia carried out with full aseptic precautions, gives us greater assurance about the complete evacuation of the products of conception than any other method. We have seen numerous cases of spasm of the cervix with incomplete expulsion of the ovum, in bleeding patients who had received pituitary extract or ergot in other hands; and so we are not enthusiastic about this method of "medicinal curettage."

Patients with only slight vaginal bleeding and mild pelvic pain during the early months of pregnancy, usually suggest a 'threat' of abortion, and sometimes present difficulty in management, especially because of the uncertainty about the ultimate outcome in particular cases. Because of this uncertainty about the prognosis in a case of threatened abortion, several types of treatment have been advocated, and gained popularity in different hands at different times. Based on observations on lower animals that removal or destruction of the corpus luteum of pregnancy brings about abortion, it was for a long time believed that a deficiency of the luteal hormone excites, or predisposes to abortion in the human female. Many patients with threatened abortion have previously been given injections of the luteal hormone, the usual dosage being about 10 mg. to 20 mg. per day; but the results have been very disappointing. It has also been recently pointed out that this supposed deficiency of the luteal hormone may be one of quantity or even perhaps of quality, and also that this shortfall occurs most frequently during the transitional period (10 to 12 weeks of pregnancy) when the responsibility of continued and increased supplies of progesterone, shifts normally from the corpus luteum of pregnancy to the placenta.

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Oestrogenic therapy has been, advocated by a number of workers and fairly extended trials have been given to this form of therapy because of the availability of orally active synthetic oestrogens at small cost. Karnaky (1942) first showed the empirical usefulness of diethylstilboestrol in abortions, and this therapy was later on placed on a rational basis by Smith and his associates. Karnaky (1951) reports a foetal salvage rate of 76 per cent. in a series of 21 threatened abortions. The dosage advocated by Karnaky is based on the severity of the symptoms in threatened abortion, and the quantity required for a given patient is that which stops cramps, spotting, bleeding and pain. In mild cases Karnaky gives 100 mg. stilboestrol by mouth every 15 minutes until the symptoms are relieved, then 25 mg. three times a day for one week, and after that 25 mg. every morning till the eighth month of pregnancy. Slightly higher doses are used in moderate cases and for severe cases Karnaky gives 250 to 500 mg. by injection into the gluteal muscles along with 250 to 1000 mg. by mouth every 15 minutes until the symptoms are relieved, then 250 to 500 mg. are given intramuscularly every third day for 2 to 4 weeks. In additions, he would give 100 mg. by mouth four times a day for 2 weeks more, then 25 mg. twice daily for 2 months and later 25 mg. daily until the eighth month. Karnaky advocates a nourishing diet including adequate vitamins and minerals, but does not consider bed-rest a necessity except in special cases. The mode of action of stilboestrol in producing beneficial effects in such cases, is not yet clearly understood. Smith and Smith have maintained that stilboestrol administration stimulates production of progesterone, the oestrogen and the progesterone then acting together to increase myometrial and vascular growth of the uterus and thus improving the endometrium to such an extent that pregnancy progresses.

onward and perhaps also thereby preventing the development of abnormal foetuses that often caused abortion. On the other hand, Davis and Fugo (1948, 1950) maintain that there is no evidence that diethylstilboestrol increases steroid production by the corpus luteum or by the syncytium—if the level of the urinary pregnanediol is to be regarded as an index of progesterone metabolism. They however, report an increase of foetal salvage rate from 8.5 to 45.2 per cent. and from 10.7 to 66.7 per cent. by the daily administration of 50 mg. of diethylstilboestrol orally to 38 patients respectively. Somerville *et al* report from Edinburgh inconsistent and even contrary findings. They found in diabetic pregnant patients that the administration of diethylstilboestrol caused a sharp fall in the urinary excretion of pregnanediol and that its withdrawal was followed by a rise. These observers maintain that the apparent rise in pregnanediol excretion following the administration of diethylstilboestrol, reported by Smith and Smith in 1946, may have been due to excretion of substances related to but not identical with sodium pregnanediol glucuronide. Recently Ross reported his observations on 36 cases with stilboestrol therapy wherein he obtained uniform success and no failures. It must however, be remembered that such large oral doses of stilboestrol may upset the stomach of the patient who is already ill, necessitating suitable symptomatic sedative treatment for this upset. Working on the hypothesis that incompatibility of maternal and foetal blood groups may cause haemolytic diseases of the foetus in some cases, while in some others it may give rise to local allergy and thus induce abortion, two workers, Hirszfild and Krzysztoporski, used the antihistaminic drug Phenazoline ("Antistin") in doses of 600 mg. three times on the first day and 300 mg. three times daily on subsequent days. These workers obtained good results with this therapy.

It is thus evident that several therapeutic substances have been used for the treatment of threatened abortion and each of them has given good results in the hands of the respective sponsors. In contrast to this, Colvin and his associates have provided interesting analysis of 1570 consecutive cases, wherein no patient received ante-partum treatment other than the usual multivitamins, by which 69.9 per cent. of the 1570 patients with threatened abortion progressed to full term. Moreover, of 112 patients whose threatened abortion terminated in expulsion of blighted ova, the next pregnancy went to term in 86.6 per cent with no additional treatment except the usual multivitamins—a most encouraging result without any other specific treatment. They found also, that in most cases, low urinary pregnanediol levels indicated a decrease in normal progesterone formation and degenerative changes in the endometrium, suggesting that hormone therapy would not have been successful because abnormality of the foetus was the predominant cause. Colvin and

his associates conclude that only in 3.9 per cent. of the patients with threatened abortion the pregnancy could have been saved theoretically by the so-called specific hormones and vitamins. In their opinion, treatment designed to lessen the irritability of the uterus is unwarranted, as the irritability is often caused by the abnormal contents. It will therefore, be seen from the studies of Colvin *et al*, that in spite of the absence of the so-called specific medication, the end-results are practically identical the same as those obtained by those who tried various kinds of hormones, vitamins etc.

From what has been stated above, it is evident that the treatment of threatened abortion should continue to be conducted mainly on a symptomatic basis, till we have hit upon a really dependable specific treatment. The most important factor in the management, is "rest in bed" which should be rigorously enforced, till the main symptoms of pain and bleeding subside. A dose of Morphine $\frac{1}{4}$ gr. with Atropine gr. 1/100 may be given to patients suffering from excessive pain (real or imagined) and also to patients who are mentally very much upset at the sight of bleeding or at the sad prospect of a premature termination of their pregnancy. The injection of morphine and atropine should not be followed as a routine measure in all cases of threatened abortion. If the patient recovers from the "threat" of abortion, she should make it a point to rest in bed during the periods when she would have got her menstrual flow if pregnancy had not supervened. If constipated, the lower bowels should be emptied by a gentle low enema using (10 to 20 ounces) normal saline or soap and water. The patient and her husband should be strictly warned to avoid any kind of sexual excitement. The diet should be light and easily assimilable, not necessarily all liquid. Fat, flabby and dull type of patients may be given thyroid extract (gr. $\frac{1}{4}$ tablets, one tablet 2 to 3 times a day) with benefit; but the dosage should be controlled by determinations of the B.M.R., blood-cholesterol, and blood-iodine. If it should be arranged, the Guterman or the Venning test for urinary excretion of pregnanediol should be undertaken; and if decidedly low values are obtained it may then and only then be justifiable to use the corpus luteum hormone, progesterone. If it is decided, after these tests, to use progesterone, it must be given in adequate doses, e.g., 75 to 100 mg. by deep intramuscular injections every day. It is perhaps unwise to rely on the oral preparations or even the "linguets" in such emergencies. Vitamin B-complex, specially B₁ (100 mg. daily) and vitamin C, 200 mg. daily, should be given to these patients. If the bleeding is not adequately controlled in 2 or 3 days, a pelvic examination should be undertaken gently under full aseptic precautions. This should include a speculum examination which may, on occasions, reveal a polyp or cancer of the cervix as the real cause of the bleeding in patients with early pregnancy. If the bleeding does not stop even after seven days of treatment as outlined above (including

bed-rest) it is usually unwise to pursue expectant treatment any further. She may then be allowed to get out of bed and walk about, under careful observation. In many cases the bleeding does not increase and may in fact stop soon when the patient may gradually start following her routine daily life. In some cases however, the bleeding increases when the patient is up and about; such pregnancies should be terminated by surgical methods (*e.g.*, laminaria tents followed by evacuation of the uterus on the following day) for, in such cases the ovum is almost certainly abnormal and nature would soon expel it even if left alone—perhaps after some more loss of blood. The patients who get over a “threat” of abortion should be closely observed throughout their pregnancy, for some of them later on develop into cases of placenta prævia with unavoidable ante-partum hæmorrhage.

The management of septic abortions and of post-abortion infections is often troublesome and sometimes it is exceedingly difficult to decide on the course of action to be followed in the particular case. Exploration of the uterine cavity to remove the partially retained products of conception, in the presence of infection, is usually regarded as a misadventure and is therefore, not advocated. Except in presence of continuous bleeding, we do not undertake to evacuate the uterus in cases where infection is not an established fact but is only suspected. The general condition and the body resistance of the patient must be rapidly built up by rest, sedatives, glucose infusions (50 to 100 c.c., intravenously of 25% solution), vitamins and transfusion of blood, when necessary. Where there is appreciable bleeding requiring urgent emptying of the uterus, it should be done with utmost care and gentle handling and without any needless or avoidable injury to the patient, her uterus or other organs; and that only after the administration of very large doses (*e.g.* 10 lacs units at once followed by 1 lac units, 4 to 6-hourly) of Penicillin and of Sulphadiazine (4 tablets *stat* followed by 2 tablets every 4 hours). Robinson and Johnson have reported good results with the use of sulphamerazine (instead of sulphadiazine), and we have obtained very satisfactory results with Aureomycin instead of Penicillin; but Aureomycin is a very much more expensive drug. In the absence of alarming or continued bleeding, the patient should be kept in bed, preferably in Fowler's position and “saturated” with Penicillin and Sulphadiazine, *e.g.*, Penicillin 2 lacs units *stat*, followed by 50,000 units every 4 hours and sulphadiazine, 2 tablets every 4 hours. The infected and retained products of conception are usually found to come out during the next few days, sometimes in one lump but more often after partial liquefaction and disintegration into several small bits. Occasionally it is found that a low range of fever is persisting with retention of the putrid products of conception which interfere with the development of the maximum benefits of chemotherapy and

antibiotics. The placental bits and other offending material have to be brought out very gently in such cases. It is usually unwise to explore the uterine cavity before the patient has remained afebrile for 3 to 4 days. Although such conservative and expectant treatments have been generally and almost universally endorsed everywhere, recent figures furnished by Corston and Stallworthy (1947), Purdie (1947), Falk and Blinick (1947) would appear to suggest that the immediate evacuation of the uterus would perhaps be equally safe. During a discussion on the treatment of septic abortion at the Royal Society of Medicine (1948), while Ramsay was in favour of conservative management, other speakers, *e.g.*, Bishop, Burnett and Stallworthy, definitely favoured early evacuation of the uterus. Davis (1950) also appears to vote for this line of treatment. Peritonitis is a serious and often a fatal complication during the course of septic abortion and in post-abortion infections. Conservative treatment is generally favoured by saturating the patient with Penicillin and sulpha drugs, and when there is a collection in the pouch of Douglas, this has to be drained through the posterior vaginal fornix by the operation under general anaesthesia of posterior colpotomy. Some recent observers like Falk and Abelow, Davis and a few others advocate radical operation of hysterectomy which is a revival of an old procedure. Schneider (1949) reports removal of the uterus with recovery in 5 cases of post-abortion peritonitis. Falk and Abelow advocate treatment of peritonitis by subtotal hysterectomy, bilateral salpingo-oophorectomy, splitting the cervix and then draining the pelvis. We are not bold enough yet, to resort to such heroic methods, in cases of infected abortions complicated by peritonitis.

Patients who are unable to carry several consecutive pregnancies to maturity cause considerable anxiety and are often difficult to manage effectively. Women who have suffered from three consecutive abortions are considered to be subjects of habitual abortion. As suggested by Javert and his associates, primary habitual abortion is the designation applied to patients with three or more consecutive abortions beginning with the first pregnancy and the term secondary habitual abortion is used when there have been three or more consecutive abortions following the delivery of one or more infants, whether immature, premature or full term. From their series, Javert *et al* found primary habitual abortion to have an incidence ratio of 1:1000 and 1:493 for the secondary group. Bishop (1937) analysed 2,687 case histories from the Maternity Service of Guy's Hospital and found that 0.4 per cent. of women had more than one initial idiopathic abortion at less than three months, and that 0.1 per cent. (*i.e.*, 3 cases) had three initial idiopathic abortions (primary habitual abortion). Malpas (1938) in his study of about 6,000 pregnancies, found that 84 women who had 3 or more consecutive abortions or stillbirths, which gives an incidence of 1.4 per cent. Eastman's (1947)

calculations concurred with Bishop's ratio of 0.4 per cent. liable to abort repeatedly due to a recurrent factor. Kæser found 10.4% incidence of habitual abortions in a study of 606 abortions. The cause of habitual abortion is not easy to discover in any given case; for, although local pelvic and general causes in the mother, may sometimes be responsible, habitual abortion is however, not commonly due to such maternal disturbances. Chronic nephritis in the mother, local conditions such as fixed retroversion of the uterus, fibroids, cervical erosion, laceration and ectropion, may sometimes be responsible for habitual abortion. Syphilis may occasionally cause an abortion but rarely habitual abortion. Lash and Lash have pointed out that internal tears of the cervix with an incomplete internal os (congenital or acquired) often remain unsuspected and may sometimes be a potential cause of habitual abortion. Israel lays stress on faulty germ-plasm as the most fruitful cause of habitual abortion. He believes that faulty germ-plasm and improper maternal environment are found in a very large proportion of cases of habitual abortion. The defective zygote, may have been due to spermatozoa which although normal in appearance may nevertheless have lacked the requisite vitality. Moreover, defective ovogenesis occurring at extremes of childbearing age may also be responsible for a defective foetus. In a study of 100 cases of habitual abortion, Wall and Hertig found the same cause repeated over and over again in 58 per cent. of cases, and the cause was found to be ovular in 43.0 per cent. of cases. Delfs and Jones encountered various deficiencies in 39 patients with habitual abortion, the commonest being decreased thyroid function. Bentley Glass (1949) studied the role of Rh-incompatibility in the causation of habitual abortion at Johns Hopkins University, and found that the incidence of abortions and miscarriages was 13.56 per cent. in Rh-positive women, 13.2 per cent. in Rh-negative non-sensitized women and 15.25 per cent. in Rh-negative-sensitized women. The two Rh-negative groups together accounted for an incidence of 13.62 per cent. Rh-negative sensitized women have actually a slightly higher abortion-frequency than Rh-positive women; but this is not greater than their higher average order of pregnancy, for abortion frequently tends to increase with increasing gravidity.

The management of a case habitual abortion has to start with a careful taking of history, followed by a thorough examination (including examination of the blood and urine) of the patient to discover one or more possible factors, which may contribute to the disability. Obvious abnormalities like anæmia, debility, chronic illnesses, uterine displacements or cervical tears should first be treated according to the usual lines of treatment. Investigations should also be undertaken to determine the capacity of the husband to procreate. After a thorough local examination an analysis of a fresh specimen of semen, should be made and repeated if necessary. Both the patient and her husband should be instructed to lead a

well-regulated life; and while the patient should be advised to take interest in her surroundings and her routine daily work, it would be advisable for her to take rest in bed during the days when she would get her menstrual periods, had she not become pregnant. The couple's daily diet should include a liberal amount of animal proteins, vitamins (particularly C and K), and essential minerals. Sexual intercourse should be avoided in the early months, atleast till the time has passed when the patient was habitually aborting in the past. Alpha-tocopherol (vitamin E) 50 mg. and about 300 mg. of ascorbic acid may be taken daily by the patient with advantage. Many patients with habitual abortion are benefited by taking thyroid extract (gr. $\frac{1}{2}$ to gr. $1\frac{1}{2}$ daily); this accords with the findings of Delfs and Jones who encountered various deficiencies in 39 patients with habitual abortion, the commonest among others being decreased thyroid function in 72 per cent and the sole factor in 44 per cent. Where facilities exist for regular B.M.R. determinations at regular intervals, it is advisable to adjust the dosage of thyroid in such a way that the B.M.R. is maintained at about *plus* 15 per cent. throughout the entire period when the patient is in the habit of aborting.

Specific therapy for habitual abortion has been tried for quite a long time. While assessing the results of any such therapeutic measure, it should be remembered that the expectation of a subsequent pregnancy going normally to full term decreases definitely after each successive abortion. Malpas (1938) showed that the expectation of a spontaneous "cure" was—78% after one abortion, 67% after two, 27% after three and only 6% after 4 abortions. Chorionic gonadotrophic hormone (*e.g.*, Pregnyl or Gonan) may be injected intramuscularly in doses of 5,000 to 10,000 I.U. on alternate days till the critical dangerous period is over, along with vitamin E and thyroid extract as mentioned above. Corpus-luteum-hormone by intramuscular injections of 20 mg. of progesterone twice a week and continued up to the end of the 32 weeks of pregnancy has been advocated by many. The modern orally effective preparations (*e.g.*, Ethisterone, or Lutocyclin oral tablets) may also be used; but to be effective they must be given in adequate doses, *e.g.*, 25 to 50 mg. daily. Vaux and Rakoff maintain that progesterone by itself is not satisfactory in habitual abortions; they obtained very good results by administering 10 mg. of progesterone and 10,000 rat-units of alpha-oestradiol benzoate mixed together in the same syringe, 2 or 3 times a week and continued beyond the time when the patient generally aborted or miscarried. Bishop has recently (1950) reported very gratifying results in a series of 45 cases of habitual abortion treated prophylactically with implantations of progesterone pellet (six 25-mg. pellets). Successful results were noted in 86 per cent. of the patients with a history of two previous abortions in 89 per cent. of those with three previous abortions and in 75 per cent. of those with four or more previous abortions. In this connection, it is well

to remember that, unlike other types of pellets, progesterone pellets tend to extrude, unless implanted quite deep; in Bishop's series of 45 cases the pellets were implanted beneath the deep fascia of the thigh. We too have obtained very good results in a few cases, but the number is too small to form conclusions of value.

The place of the oestrogenic drug diethylstilboestrol in the active treatment of abortions and in the prevention of habitual abortions has been the subject of heated discussions during the last few years. Smith and Smith have maintained that its administration stimulates the production of progesterone. Other workers like Davis and Fugo failed to find evidence for such a contention. Greenhill and several others do however, still use stilboestrol for habitual abortions. Smith (1948) reported good results, pooled from the observations of 117 obstetricians, and also detailed their prophylactic technique. They started with 5 mg. stilboestrol daily by mouth in every early pregnancy. This dose was increased by 5 mg. at 2-week intervals up to the fifteenth week when 25 mg. daily was given. The daily dose was thereafter increased by 5 mg. at intervals of one week, and the drug was finally discontinued at the end of the 35th week. The foetal salvage rate was 77 per cent. on the average amongst 127 patients who had had 2 to 5 consecutive abortions before the stilboestrol therapy. In his lecture on 'Sterility' before the Royal College of Obstetricians and Gynaecologists on May 19, 1950, Snaith also reported very satisfactory results with oestrogen therapy. In view of the fact that stilboestrol therapy is much less expensive than the treatment with other hormones, this method deserves a more extended trial in our country.

In the management of abortions, a close watch should be kept in order to prevent them or to undertake early treatment of post-abortol oliguria, several cases of which have been reported in the literature in recent years. In 1941, Bratton first reported on anuria associated with abortions. He described eight fatalities in women who had septic abortions, the renal lesions in these patients being identical with those observed in the crush syndrome. Young and McMichael in 1941, reported two instances of lower nephron syndrome associated with pregnancy. Young believes that the renal failure is determined by a massive utero-placental lesion of ischaemic origin, that a hypothetical nephrotoxic substance is liberated from this lesion and that it produces tubular degeneration, causing azotæmia. O'Donnell (1949) reported three fatal cases which added further proof of a presumptive relation between abortion and lower nephron nephrosis. The patients showed the usual manifestations of crush syndrome with abrupt onset, headache, malaise, vomiting and elevation of N.P.N. levels of blood. All the patients had infected incomplete abortions and septicæmia. Jones (1949) reported one case of post-abortol oliguria. Bigby and after abortion and a *Cl. welchii* infection. Belvederi (1949) reported

four cases of post-abortol anuria. Wyatt and Goldenberg (1950) reported three fatal cases of lower nephron nephrosis associated with abortion. We have also recently come across a few cases with the above-mentioned picture of lower nephron nephrosis in infected abortions, with histories (actual or suggestive) of criminal induction. It will thus be seen that an infected abortion is a very serious condition, and requires to be managed and handled very carefully; and we must always bear in mind that, in spite of the steep fall in the number of cases of serious infection following abortion, some women will pay with their lives, for an induced abortion.

References:

1. Belvederi, C.—*Riv. Ital. Ginec.*, 32: 349-370, Nov.-Dec., 1949.
2. Bender, S.—*J. Obst. Gyn. Brit. Emp.*, 54: 783, 1947.
3. Bender, S.—*Brit. M.J.*, 1: 683-684, Apr. 10, 1948.
4. Bigby, M.A.M. and Jones, F.A.—*J. Obst. Gyn. Brit. Emp.*, 56: 636-647, 1949.
5. Bishop, P. M. F.—*Guy's Hosp. Rep.*, 87: 362, 1937.
6. Bishop, P. M. F., Richards, N. A., and Doll, R.—*Brit. M.J.*, 2: 131-133, 190.
7. Bratton, A. B.—*Lancet*, 1: 345, March, 15, 1941.
8. Colvin, E. D., Bartholomew, R. A., Grimes, W. H. and Fish, J. S.—*Amer. J. Obst. Gyn.*, 59: 1208-1224, June, 1950.
9. Corston, J. M. and Stallworthy, J.—*Brit. M.J.*, 2: 89, 1947.
10. Davis, A.—*Brit. M.J.*, 2: 123-130, July, 15, 1950.
11. Davis, M. E. and Fugo, N. W.—*Proc. Soc. Exper. Biol. and Med.*, 69: 436, 1948.
12. Davis, M. E. and Fugo, N. W.—*J. Am. Med. Assn.*, 142: 778-787, Mar., 18, 1950.
13. Delfs, E. and Jones, G. E. S.—*Obstet. Gynec. Surv.*, 3: 680-692, Oct., 1948.
14. Delfs, E. and Jones, G. E. S.—*S. Med. J.*, 41: 809-814, Sept., 1948.
15. Eastman, N. J.—Meigs and Sturgiss' "Progress in Gynecology", Heinemann, London, 1947.
16. Falk, H. C. and Blinick, G.—*Am. J. Obst. Gyn.*, 54: 314, 1947.
17. Falk, H. C. and Abelow, I.—*West. J. Surg.*, 57: 419-423, Sept., 1949.
18. Farris, E. G.—*Fertil. and Steril.*, 1: 76-86, January, 1950.
19. Glass, B.—*Amer. J. Obstet. Gynec.*, 57: 323-332, Feb., 1949.
20. Greenhill, J. P.—*Year Book of Obstetrics and Gynecology*, (1950), p. 64.
21. Grosser—*Arch. f. Gynak.*, 176: 1, 1948.
22. Guterman, H. S. and Tulsky, A. S.—*Am. J. Obst. Gyn.*, 58: 495-502, Sept., 1949.
23. Hirszfeld, L. and Krzysztoporski, S.—*Polsk. Tyg. lek.*, 5: 321-325, Feb., 27, 1950.
24. Israel, S. L.—*Am. Pract.*, 1: 381-389, Apr., 1950.
25. Javert, C. T.—*N. Y. St. J. Med.*, 48: 2595-98, 1948.
26. Javert, C. T., Finn, W. F. and Stander, H. J.—*Am. J. Obst. Gyn.*, 57: 878-889, May, 1949.
27. Kaeser, O.—*Schweiz. Med. Wechnachr.*, 79: 509-515, 780-785, 803-805, 1050-56, 1079-84, 1949.
28. Karnaky, K. J.—*S. Med. J.*, 35: 830, Sept., 1942.
29. Karnaky, K. J.—*Arizona Med.*, 8: 36, January, 1951.
30. Lash, A. F. and Lash, S. R.—*Am. J. Obst. Gyn.*, 59: 68-76, Jan., 1950.

References—(Contd.)

31. Macomber, D.—Boston M. & S. J., 193: 116, 1925.
32. Malpas, P.—J. Obstet. Gynec. Brit. Emp., 45: 932, 1938.
33. O'Donnell, W. M.—J. Amer. Med. Assn., 140: 1201-1205, Aug. 13, 1949.
34. Purdie, A. W.—Brit. M. J., 2: 272, 1947.
35. Ramsay, A. M., Bishop, I. R., Burnett, C. W. F. and Stallworthy, J.—Proc. R. Soc. Med., 41: 317-322, May, 1948.
36. Robinson, L. S. and Johnson, C. G.—Am. J. Obst. Gynec., 58: 166, 1949.
37. Rock, J.—Davis' Gynecology and Obstetrics, Vol. I. Chapter 10; W. F. Prior Co. MD., U.S.A.
38. Ross, J. W.—J. Nat. Med. Assn., 43: 20-22, January, 1951.
39. Rutherford, R. N.—Surg. Gynec. Obst., 74: 1139, June, 1942.
40. Schneider, M.—J. Obstet. Gynec. Brit. Emp., 56: 1046-50, 1949.
41. Smith, O. W. and Smith, G. V.—Am. J. Obst. Gyn., 51: 411-415, Mar., 1946.
42. Smith, O. W.—Am. J. Obst. Gyn., 56: 821-834, Nov., 1948.
43. Smith, O. W. and Smith, G. V.—New Engl. J. Med., 241: 562-568, Oct. 13, 1949.
44. Smith, O. W. and Smith, G. V.—Am. J. Obst. Gyn., 58: 994-1009, Nov., 1949.
45. Snaith, L. M.—Brit. M. J., 1: 1316, June 3, 1950.
46. Sommerville, I. F., Marrian, G. F. and Clarton, B. E.—Lancet, 1: 680, Apr. 23, 1949.
47. Stewart, H. L. Jr.—Am. J. Obst. Gyn., 59: 563-574, Mar., 1950.
48. Swan, C.—J. Obst. Gyn. Brit. Emp., 56: 341 and 591, 1949.
49. Taussig, F. J.—Am. J. Obst. Gynec., 22: 729, 1931.
50. Taussig, F. J.—Abortion, Spontaneous and Induced. Kimpton, London, 1936.
51. Tietze, C., Guttmacher, A. F. and Rubin, S.—J.A.M.A., 142: 1348, 1950.
52. Tietze, C.—Am. J. Obst. Gyn., 60: 146-152, July, 1950.
53. Wall, R. L. and Hertig, A. T.—Am. J. Obst. Gyn., 56: 1127-1133, Dec., 1948.
54. Wiehl, D. G.—Millbank Mem. Fund Quarterly, 16: 1-9, Jan., 1938; quoted by Rock.
55. Wyatt, J. P. and Goldenberg, H.—Am. J. Obst. Gyn., 59: 327-344, Feb., 1950.
56. Young, J.—J. Obst. Gyn. Brit. Emp., 49: 221-246, June, 1942.

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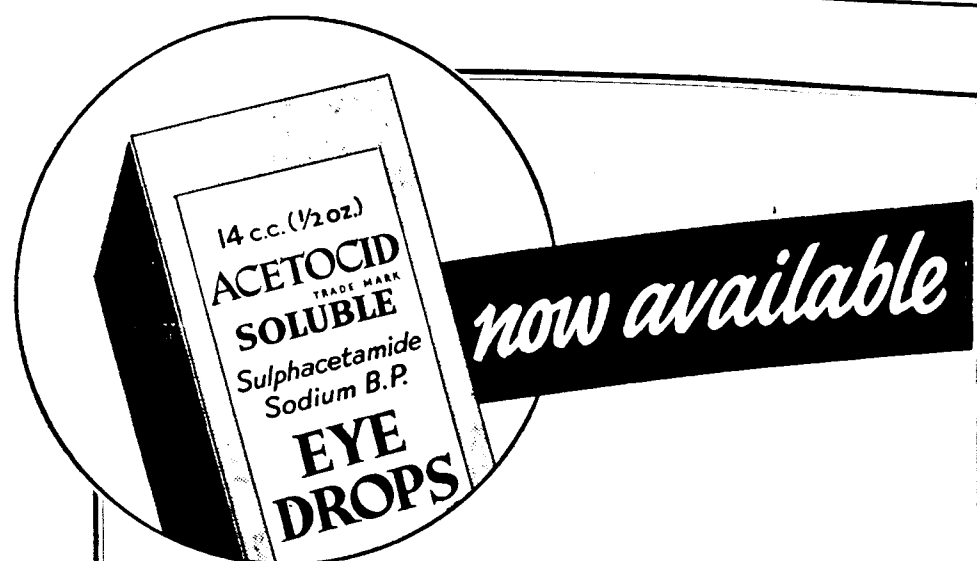
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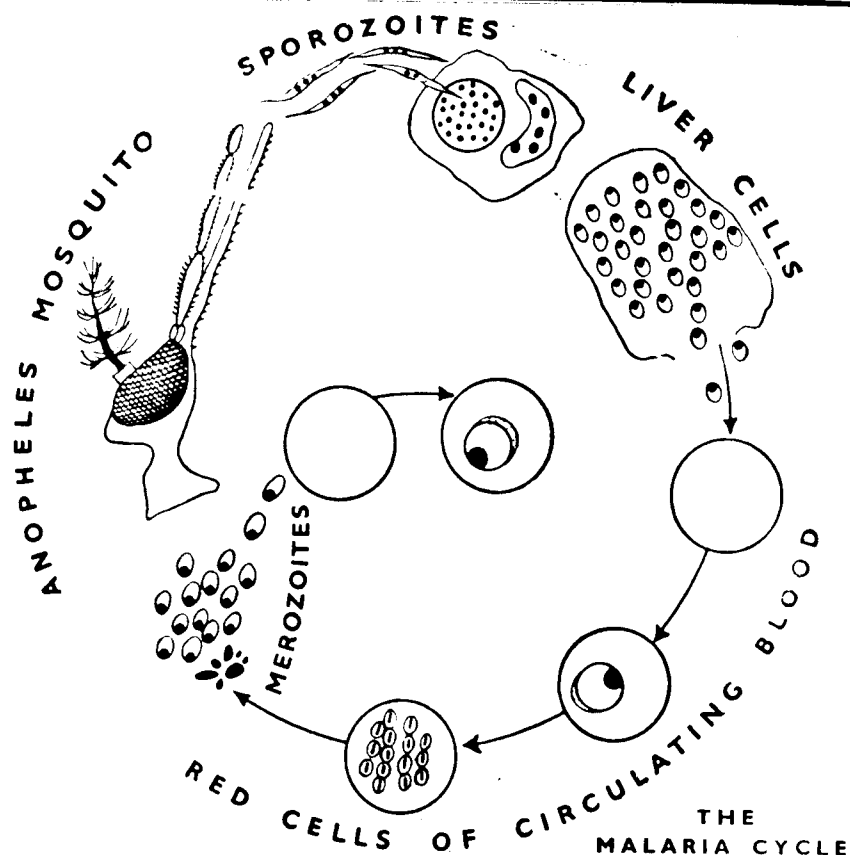
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CHEMOTHERAPY OF FILARIASIS

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History.—Filariasis, an infection of man and lower animals, is known to have existed since the earliest records of history. The chief serious complication of this disease is elephantiasis which produces grotesque deformities. Little was known about its cause until 1863, when Demarquay found the embryonic forms—microfilariae—in hydrocele fluid. In 1866, Wucherer found microfilariae in chylous urine and Lewis found the same forms in the circulating blood in 1872. The adult worm was first noted by Bancroft in 1876.

The mosquito was incriminated as a vector in 1878, by Manson who noted at the same time that microfilariae appeared in large numbers at night but were absent from the peripheral blood during the day.

Life history of Wuchereri-bancrofti.—The susceptible mosquito ingests microfilariae in a blood meal and within a few minutes they lose their protective sheaths and make their way to the body cavity and thoracic muscles of the mosquito. Here they undergo further development but do not become sexually mature although they move in pairs. When the mosquito bites a healthy individual, the larvæ escape and enter the puncture-wound or penetrate unbroken skin. From here they soon find their way into the peripheral lymphatics and eventually migrate to the larger lymphatic trunks. Sexual maturity is attained and mating occurs in the lymph nodes. The female rapidly develops a huge uterus filled with embryonic forms which are then discharged into the blood stream *via* the lymphatic trunks. This completes the cycle, and it is impossible for the microfilariae to attain maturity without passing through an appropriate mosquito followed by a reintroduction into man.

The incubation period varies from 10 to 18 months. As the infection is largely one of the lymphatic system, the symptoms are primarily confined to the lymph nodes in the axilla, groin, and spermatic cords. The lymphangitis occurs along the course of the major lymphatic vessels in the arms and legs always appearing proximally and extending distally in contrast to the behaviour of lymphangitis of bacterial origin. There will be associated fever of usually 101°F to 102°F, some malaise and a mild leucocytosis.

It is not always possible to demonstrate successfully the presence of microfilariae in the blood stream. Filarial infections in common with other tropical parasitic infections, have as their chief characteristic a tendency to run a chronic course. Elephantiasis is to be regarded as a complication occurring at the most, in not more than 7% of chronic infections and it usually appears in the lower

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extremities, the genitalia and the mammary glands of the female. A symptomatic filariasis is very common in all parts of the world.

Thus, it would be evident that the ætiology of the disease is fairly well understood and despite this knowledge the treatment and complete cure of the disease have been far from satisfactory.

Now let us consider the drugs available for therapy :—

Arsenicals :—Organic trivalent :—Mapharside, P-Arseno-Benzamid. Organic pentavalent :—Tryparsamide, Acetarsol, etc.

Antimony compounds :—Trivalent :—Anthiomaline, Fouadin, Tartar emetic. Pentavalent :—Stiboson, Neo-Stibosan, Urea stibamine and Stibanose.

Cyanine dyes :—P-Amino Styryl Quinoline and Diquinolines.

Piparazine compounds :—1-Diethyl Carbamyl, 4-Methyl Pipera-zine Hydrochloride, (*Hetrazan*).

Arsenicals.—Ikegami (1920) is reported to have eliminated microfilariae from one patient by giving two doses of 0.3 gm. of *Arsaminol* (Japanese Arsphenamine) and that the patient remained blood-negative for the year he was under observation.

More recently, Brown and Schoenbach have each reported the elimination of microfilariae from a patient receiving the intensified course of Mapharsen (5 days constant-drip-method).

G. F. Otto and Maren of Johns Hopkins University have studied the effects of a recently synthesized compound P-Arseno-Benzamide (T. D. C. # 622) which offered the greatest promise, because it was the only one known to kill all the adult filariae in both the cotton rat and the dog in doses considered feasible in routine practice.

The compound is P-bis (Carboxymethylmercapto)-Arsino-Benzamide, and now bears the nonproprietary name Arsenamide (1948). Its structural formula is as follows :—



AS-(S.CH. COOH)₂ It is a white powder containing 20% of Arsenic and stable at room temperature. The sodium salt is readily soluble and it is stable both in buffered and unbuffered solutions. For intravenous use a 2% solution is used.

The drug was tried on 18 adults in a dose of 0.2 mg. AS/Kg daily for 15 days. The treatment was easily tolerated. Nine of the patients became blood-negative as judged by the examination of 0.1 c.c. of night blood. The microfilariae count dropped almost to zero in the remaining nine. Six of these patients have now been followed for five to ten months after treatment and there have been no changes in the microfilaria-levels.

Thus, it may be observed that substituted Phenyl arsenoxides are singled out as warranting particular consideration and further

work in this would be eagerly awaited. It remains to be determined, whether the adults of *W. bancrofti* are killed or not by this treatment.

Chopra and Rao (1929) noted that the use of pentavalent arsenicals like Tryparsamide reduced chyluria and eliminated microfilariae from urine. Tryparsamide is widely used in the treatment of sleeping sickness (Trypanosomiasis) and neurosyphilis. The field of usefulness of this drug is very limited on account of its toxicity *e. g.*, optic atrophy etc.

Anthiomaline.—It is supplied as a 6% solution, 1 c.c. containing 60 mg. of Anthiomaline or 10 mg. of antimony for intramuscular use.

All injections are given into the gluteal muscles, alternating sides daily. Usually a single daily injection is given on consecutive days, unless prevented by poor co-operation of the patient or rarely by toxic manifestation due to the drug. On the first day 0.5 to 1 c.c. is usually injected to ascertain the sensitivity of the patient to the drug. If no untoward symptoms like vomiting, local reaction at the site, fever, arthritis, albuminuria, rashes and any other anaphylactic symptoms are observed, then full doses of three c.cs. per day may be given. The entire course will last from 7 to 28 days.

I had occasion to use this drug in nearly 50 cases in the Christian Medical College Hospital, Vellore for over a period of four years. The results of the treatment were quite encouraging. Nearly 80% of the cases were becoming asymptomatic after a course of 10 to 12 injections. But relapses were observed in quite a number of patients. Most of the patients treated were ambulatory. Routine examinations of urine and blood-cell-counts were done in the out-patients. Mild albuminuria which however, quickly cleared up was the only complication observed in a few cases.

The results of treatment of persons infected with *W. bancrofti* with Anthiomaline strongly suggests that the drug is lethal not only to the microfilariae but possibly also to the adult worm as well and that 85 to 90% of the worms are killed by one series of the drug. It is possible that the microfilariae circulating in the blood are more delicate than the adults and are more readily killed. Likewise a higher concentration of the drug may reach the microfilariae in the blood stream more rapidly than the adults in the lymphatics. The initial sudden drop in the microfilariae may have been due to their elimination from the blood stream by the direct action of the drug. The adults are presumably more resistant to the effects of the drug and so more slowly killed; they continue to supply the blood stream with fewer and fewer microfilariae.

Although Anthiomaline marks a great advance in the therapy of filariasis, it is obvious that the necessity for repeated injections

attended by a certain amount of toxicity, limits its usefulness and so it should be considered only as a first step in the search for an oral, non-toxic therapeutic agent.

James T. Culbertson of the University of Arkansas studied recently the comparative effects of the following antimony drugs and here are his findings:—

DRUGS USED.—*Pentavalent*:—Neostibosan, Neostam, Urea-stibamine and Stibanose.

Trivalent:—Anthiomaline, Fouadin and Tartar emetic.

All these preparations were given intravenously except Stibanose, Fouadin and Anthiomaline, which were administered intramuscularly.

Drug	No. of patients treated	No. of patients freed of infection	Months of observation
Neostibosan	35	27	26-36
Neostam	11	5	25
Urea-stibamine	6	6	28
Stibanose	5	1	24
Anthiomaline	20	6	26
Fouadin	15	6	26
Tartar emetic	4	1	25

It appears from these data that, following the intensive application of any of several compounds of antimony, filarial infection due to *W. bancrofti* can be eradicated from the human subjects. None of the drugs used in the present study has proved to be ideal for use in man, for all of them required intensive administration by injection over a considerable period of time in order to eradicate the infection completely. Dangerous reactions were also frequently seen during treatment.

Practical therapy of filariasis must therefore, await the discovery of a filaricidal drug which is safer to use than those here employed and which exercises its effects in a shorter time. It would be helpful too, if the compound could be administered orally.

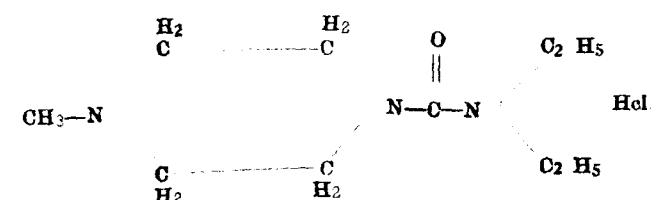
Cyanine and related compounds.—A group of more than sixty Cyanine and related compounds have been tested for filaricidal activity in the natural *Litomosoides carinii* infection in the wild cotton rat by Harold N. Wright *et al* of the Minneapolis School of Medicine.

The compounds tested were chiefly P-amino styryl quinolines and Diquinolines and out of them the derivatives that possessed the greatest degree of filaricidal activity in the cotton rat was 1-ethyl-3,6-dimethyl-2-phenyl-4-pyrimido-2-cyanine chloride (Chemotherapy Center-C. C. # 863).

Studies on the possible effectiveness of compound # 863 in the treatment of human patients infected with *W. bancrofti* have been initiated in Puerto Rico. The therapy consisted of 4 to 8 intravenous infusions of 2.0 mg./kg. of the drug with a 48 hour interval between doses. Injections of 1.0 mg./kg. given twice weekly for

4 weeks were likewise well tolerated. Occasional nausea and mild transient fall in blood pressure with compensatory tachycardia were the only untoward reactions observed in the 27 patients treated. Microfilaria counts made on the peripheral blood of these patients showed a marked reduction of microfilariae during and immediately following the therapy. Within a few weeks, however the number of circulating microfilariae had returned to pretreatment levels and remained so for a period of 9 to 10 months.

Piperazine compounds.—1-Diethyl Carbamyl, 4-Methyl Piperazine Hydrochloride (*Hetrazan*).



Hetrazan is a colourless, crystalline solid, readily soluble in water. Studies on animals like rats, guinea pigs and mice have shown that it has a low toxicity and few side reactions.

For filarial patients, the drug is given orally, the doses varying from 0.5 mg. to 2 mg. per kg. of body weight, three times a day. The period of treatment may be anywhere from 3 to 23 days. The drug is usually well tolerated in all instances. The following are some of the common reactions encountered:—fever, headache, general malaise, anorexia, nausea and vomiting, painful nodular swellings, aching joints, skin manifestations, shortness of breath, and pain in the abdomen. Ordinarily no severe toxic reactions occur, though occasionally some minor symptoms may appear.

The results obtained so far indicate that Hetrazan when given orally, causes the rapid disappearance of microfilariae from the blood stream. Evidence also points to its favourable action on the adult worm.

In conclusion, the modern therapy of filariasis rests on the choice of the two drugs, Anthiomaline and Hetrazan. The latter has the advantage of being effective orally and also acting rather quickly on the microfilariae. The toxic reactions are quite minor in nature.

References:

1. Napier. L. Everard, (1946)—The Principles and Practice of Tropical Medicine.
2. Napier. L. Everard. (1944)—Filariasis due to *Wuchereria bancrofti*.
3. Publications of the Annals of the New York Academy of Sciences, May 25, 1948.
4. Torald Sollmann, (1948)—The Manual of Pharmacology.
5. Hetrazan—Publications of American Cyanamid Co, Pearl River, New York.
6. Manson Bahr—Tropical Diseases.

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LOW BACK-ACHE ITS DIAGNOSIS AND MANAGEMENT

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Low back pain is a common complaint; it may arise from numerous causes. An exact diagnosis is essential for appropriate treatment. Back-ache is not a specialized disease, but is a symptom of some underlying pathology or functional disturbance. Many cases suffer from a combined organic and functional disorder. Pain is a disagreeable sensation due to stimulation of some portion of the central nervous system and referred to the peripheral distribution of the cerebro-spinal nerves in the external body-wall. It is always localized not at the point stimulated, but in the field of distribution of the nerve. This pain may be superficial and stabbing, or deep and gnawing, or paralytic and numb. Superficial pain is precisely localized, pricking, burning or stinging as is usually the case when it is of inflammatory origin. But deep pain is vaguely localised, often referred and of 'indescribable' quality. It includes visceral pain. The intensity of the pain depends on sensitivity. Some are more sensitive than others. Hypersensitive people have atypical symptoms. The psychogenic factor is of course very prominent. True assessment of pain, its quality, gradation, time-intensity, localization and reference are essential for a proper investigation of its source.

The vast majority of low back complaints are the result of lumbo-sacral instability with periodic decompensation of the lumbo-sacral ligaments and muscles that sustain the body weight, whereat the centre of gravity passes considerably in front of the sacrum. The instability is marked when it is more than 2.5 cm. The lumbo-sacral region is therefore, particularly vulnerable. Here exists a complex anatomical system of several joints with innumerable ligaments, muscles and aponeuroses. These may be subjected to diverse strains as a result of trauma or assumption of faulty positions and fixation of segments for overlong periods. Industrial workers, soldiers, sailors and athletes frequently expose themselves to persistent strain of certain muscles and ligaments with powerful leverage. Muscular strain, injury to ligaments, displacement of cartilage, subluxation, dislocation of traumatic arthritis may result. Congenital abnormalities of this region are not uncommon, but only rarely do they directly or indirectly predispose to strain of certain muscles or ligaments.

It is necessary to distinguish between the psychosomatic type with or without underlying tissue changes and the real type with definite pathology. In fact the greater number of cases belong to the first category, the cause of aches of the sacral region being often psychical nuisances (e.g., unpleasant work, dangerous tasks during

the war, financial difficulties etc.). Besides traumatic and infectious forms of back-ache (i.e., myositis due to focal infection), there is a group resulting partly from skeletal deformities and partly from changes in the alignment of the articulations. Reflex back-aches may also occur in connection with changes in the prostate or female generative organs. Irrespective of the origin of the pain, all these cases show certain characteristic features; there may be pain in the lumbar or gluteal region, often the pain radiates down the leg or thigh, there is lumbar rigidity and in addition the position assumed by the patient is characteristic—a listing of the spine towards the affected side (scoliosis). Straight leg raising normally to the extent of 80°, is limited to 30 or 40° (Lasegue's sign).

Only a very careful clinical investigation and physical examination of the patient will help the surgeon to diagnose the cause of the back-ache.

Clinical investigation.—Pain, the chief symptom requires detailed investigation; its situation and radiation are indicative of the seat of the trouble; its duration, mode of onset, nature and further progress will be further revealing. If it improves with rest or movement, whether accompanied by stiffness, whether it radiates to the thigh or leg, whether it becomes worse with coughing or sneezing, if there is any accompanying anaesthesia or other sensory disturbances etc., are all points for careful investigation. The attitude of the patient, his gait, the way in which he sits, stands, lies down etc., should be noted. Next the patient should be stripped and his back inspected for deviation of the spine, asymmetry of the paraspinal muscles and Michælis' rhomboid. Note must be made of the existence of any scoliosis, flattening of the glutei or obvious differences of the furrows on either side between the rib margin and the iliac crests. The lumbar spines, the posterior superior and inferior iliac spines and the last ribs should be systemically palpated for tenderness, thickening or deviation. The loins, the buttocks and the ilio-crystal furrows are then palpated. Pressure on the iliac crests or over the pubic arch may reveal tenderness or cause pain in the pelvic girdle elsewhere. Thickened fibrotic nodules or sensitive nerve trunks may be felt. Palpation of the iliac fossae in front, the hernial apertures and the suprapubic areas should not be omitted.

There is a *standardized group of tests* for investigating back disability. The standard posture, forward and lateral bending, torsion and rotation movements of the spine should be studied in normal persons to appreciate slight deviations from the normal in the afflicted. The following tests could be readily carried out in any outpatient clinic:

(1) Make a routine examination of the spine, hip and knee movements.

(2) Straight leg raising:—Patient is made to stand with his back to the wall, and standing on one limb straight, he is asked to raise his other limb, keeping the knee straight.

(3) Make the patient sit on the edge of a chair and ask him to lift his toes to the mouth alternately (Toe-to-mouth test for sacro-iliac pain).

(4) 'Sitting-straight leg test':—Patient lies down on the examining table with both knees straight; he then comes to the sitting position and leans forward to touch his toes keeping the knee straight. If he cannot reach the erect position, it may be due to ankylosis in the lumbar spine or hips, or to sciatic pain. If he can come up to the sitting posture, by relaxing the knee on the painful side, the test is positive; it helps to differentiate between ankylosing and painful diseases of the lumbar spine.

(5) Forcing the leg in flexion, abduction and lateral rotation causes pain in the affected sacro-iliac joint. (Laguire's sign).

(6) The thigh is strongly flexed with the knee extended, and the tension of the hamstring muscles produces a rotatory force upon the sacro-iliac joint, pain being intensified (Goldthwait's test).

(7) The thigh and the knee on the affected side or flexed, so that the extremity is pressed against the abdomen; on hyper-extension of the opposite hip, pain is felt in the affected sacro-iliac joint.

(8) With the patient lying on his sound side and his hip flexed to obliterate the lumbar lordosis, the upper leg is flexed to a right angle at the knee and the limb abducted and extended at the hip in a line with the trunk. If there is an abduction contracture, the limb remains passively abducted by the shortened ilio-tibial band (Ober's test).

Next an X-ray examination of the genito-urinary tract, the lumbar spines, the ilio-lumbar, the lumbo-sacral, the sacro-iliac joints, the coccyx, and hip joints obtaining 2 views (a lateral and an antero-posterior), is made. It should be remembered that congenital abnormalities are frequent in this region, but symptoms directly attributed to them are rare; often the knowledge of these findings may lead to neurosis or be utilised by malingerers to attribute symptoms to them (a condition which is occasionally seen in industrial workers, persons in the armed forces, and compensation seekers in accident cases). The examination is concluded by a routine examination of the urine, blood pressure, and when necessary the blood for W.R. and Kahn; it is also essential to do a rectal and/or vaginal examination to exclude organic disease of the pelvic organs.

It will be impossible in this short paper to deal with all possible pathological conditions which may lead to low back-ache; but I shall deal briefly with a few commonly occurring disabilities in practice.

1 *Myofascial strain*:—The gluteus maxims and the sacro-spinalis are two powerful muscles and these may be subjected to a severe strain by powerful leverage as in attempting to lift a heavy weight from the stooping posture or a fall from a height in the standing or sitting position. The origin of the sacro-spinalis from the back of the sacrum between the spinous processes and the posterior iliac-spine, when subjected to strain gives rise to a tender spot over its periosteal attachment. Likewise the gluteus maximus arising from the posterior iliac spine and sacro-tuberous ligament may be strained; here the tenderness is greater laterally and at a higher level, and there may be also a diffuse tenderness over the whole length of the two muscles. The diagnosis is by the location of the exact tender spot and a history of recent injury and absence of any previous attack. This acute back-ache is treated by local injection of the area exact spot with 2% Novocaine. It may have to be repeated after 2 or 3 days; and later after the subsidence of the acute symptoms, physiotherapy, active remedial exercises and electrical treatment should be given. Neglected and imperfectly treated cases may be followed by chronicity and prolonged disability from severe fascial contracture. This may require manipulation under anaesthesia and occasionally operative treatment—stripping of the posterior spine or division of the ilio-tibial band and fascia lata and the intramuscular septa.

2. *Neglected fractures of the transverse processes* of the lumbar vertebrae may be followed later on by disability and back-ache. It should be prevented by proper diagnosis at the time of the accident; an X-ray is essential in every case of injury to the back, even though it may appear to be trivial. If however, it has been omitted physiotherapy and mobilising exercises and the gradual resumption of full work should be advised.

3. *Compression fracture* of the lower lumbar vertebrae may give rise to persistent pain, continued weakness and ill-health. If not relieved by a few weeks of physiotherapy, local fusion of the laminae and spinous processes is the only alternative and will give certain relief.

4. *Sacro-iliac strain*:—Normally at this joint, there is only a small range of movement; the opposing surfaces are irregular but fit in nicely. When there is a powerful leverage movement exerted through a lower limb e.g., wrestling or lifting a heavy weight, locking may occur. Besides pain in the back, there is a tender spot just medial to the posterior superior iliac spine and there is also tenderness over the inferior sacro-iliac ligaments and the great sciatic notch. Lying on the back is uncomfortable and turning over from the recumbent position is very painful. While sitting on a hard chair, the patient tries to relieve himself by sitting on the opposite buttock and bending forward. Straight leg raising is limited to 30°

or 40° but only on the affected side. The pain-distribution here is over the posterior aspect of the thigh and abductor regions. The treatment in the acute stage is a local injection of 2% solution of Novocaine 2 c.c. after exactly localizing the tender spot. The patient is put to bed with a hot water bottle over the part. No radiant heat or manipulation should be given; even massage should commence only after the acute symptoms have subsided. Later however, when scarring and fibrosis have occurred as evidenced by chronicity, history of recurrent attacks and absence of acute symptoms, manipulation and stretching may be beneficial. Under general anaesthesia, the patient is placed on his back with the lower limbs projecting from the end of the table, the limbs being supported: after rocking the affected limb gently for a few minutes, the patient is turned over his sound side, the affected limb is well flexed on the thigh with the knee extended; the ankle is grasped and brought to touch the patient's nose. This will stretch the adhesions and the patient should thereafter, be given physiotherapy. Before any manipulation is attempted, tuberculosis, disc-protrusion and malignancy should be clearly excluded by careful examination and skiography.

5. *Lumbo-sacral strain*:—In the adult, there is an angulation of 120° at this junction. This region is unstable for the following reasons:—It is at the junction of a fixed and movable part of the spinal column, designed for the four-footed position but a disadvantage in the upright position; it is often the seat of a rotatory action which is asymmetrical; it is also the seat of great shearing strain. The usual trauma is powerful leverage from above with the spine in flexion. The pain here is referred to the fifth lumbar and sacral areas, and is therefore felt on the side of the leg, dorsum of the foot and also the sole. The tenderness is over the ilio-lumbar ligaments, the spinous processes of the IV and V lumbar and I sacral vertebrae. All lumbo-sacral movement is restricted but the patient is able to bend forward freely, by holding the sacro-lumbar region rigid and flexing chiefly at the hip joints. Straight leg-raising is limited on both sides equally, whereas in sacro-iliac strain it is unilateral. There is no sneeze or cough pain distinguishing it from a disc lesion with protrusion. There is no pain on compression of the pelvis and so arthritis, specific or non-specific may be excluded. The treatment is similar to that of sacro-iliac strain excepting that the novocaine injection is made at a point nearer to the spine and at a slightly higher level—just lateral to the V lumbar spine. Chronic cases require manipulation and stretching.

6. *Low back-ache associated with postural errors*:—Habitual assumption of faulty attitudes in certain occupations, weak feet, or a protuberant abdomen may cause back-ache. Here the muscular strain occurs after failure of postural tone which is controlled by the autonomic nervous system, and voluntary effort is required for this in addition to securing motion. Treatment of such a condition

is to remove the cause or to provide a suitable support for the spent muscles.

7. *Ruptured intervertebral disc* is a comparatively common cause of low back pain. Herniation and rupture of the disc represent an advanced stage of the degenerative process. During the stage of degeneration, the disc acts as an inadequate and inefficient joint. Trauma is accessory. In the degenerative stage, there is reflex pain down the posterior aspect of the legs, never extending below the knee; cough and sneeze pain or absent at this stage. On examination the signs are limited to restricted back motion and local tenderness. This syndrome is due to a weakened lumbosacral joint; when cough and sneeze pain are also present and probably also, numbness and anaesthesia down the leg, compression of a nerve root is existing. The criteria for accurate diagnosis are a history of an accident (fall from a height, landing on the feet), a bad lumbar puncture, or in aviators positive acceleration in pull-outs following power-dives, and clear symptoms of a radiculitis or peripheral neuritis in the nerve-root concerned in cases of rupture of the disc. With rupture there is also increase of proteins in the C.S.F. (over 60%). If calcifications are present in the disc, a decrease of the intervertebral space is suggestive evidence. In a high percentage of cases, routine X-ray views (A. P. and lateral) will demonstrate the protrusion. Myelography is not essential for diagnosis and is not free from risk. If it is required for confirmation of doubtful symptomatology, it should be used only if operation is to be followed soon. There is sometimes a co-existing congenital abnormality which may probably account for a trivial injury causing the prolapse. Most cases yield to medical treatment or physiotherapy. Some improve with plaster immobilization. Those that relapse are to be considered for surgical treatment. The prolapse should be removed with as little mutilation as possible; the dura-mater should not be opened if possible and the prolapse removal effected extra-durally. Radicotomy is seldom indicated; when needed, it should be limited to a single root and used only in cases in which total ablation of the prolapse is impossible. A bone-graft may be needed in some cases to avoid post-operative pain from a weakened spinal column or in the presence of an abnormality or malformation. Some advise simple ablation by an intermyo-laminar route; but this is apt to be followed by an incomplete ablation and may lead to a recurrence of symptoms.

8. *Herniation of the sub-fascial fat* has been the only pathological condition present on exploration of the spinal canal for some cases of lumbar pain with sciatic radiation; removal of this fat has been followed by complete relief. A hypertrophied ligamentum flavum has given rise to symptoms and also partial block of the spinal canal. Removal of the block and of the offending ligament has been followed by relief.

9. *Fibrositis* :—Lumbago.—Non-suppurative inflammatory reaction of the supporting tissue of the body—(myositis, panniculitis, capsulitis, neuritis etc.) indicates tissue affected. These may result from focal sepsis, e.g., septic teeth, tonsils, antrum etc., dietetic errors, metabolic defects, certain occupational strains, and environment, abnormal climatic conditions and/or psychological factors. The diagnosis is mainly by exclusion of the above well-defined syndromes and by a careful investigation of the history of the case. Negative radiological and other findings should be suggestive. Usually tender spots are present; there is often a referred sciatic neuritis. The treatment is to eliminate any septic foci, restrict protein and purine intake, control weight in the overheavy individuals, and in some cases administer thyroid extract. It may be difficult to correct occupational and climatic causes, but psychological treatment will be useful in supplementing local measures and symptomatic treatment—*aspirin*, local radiant heat application or *infra-red* therapy etc. Local infiltration of painful areas with *novocaine*, and in chronic cases, manipulation of the lumbar spine and sacro-iliac joints under general anaesthesia with stretching of the hamstring muscles, may be required.

10. *Pathological changes in the spine* :—Tuberculosis, non-specific spondylitis, new growths in the spinal cord or in the vertebræ (secondary osseous metastases) may cause back-ache and should be promptly recognized. *Spondylitis* is a more extensive disease, not confined to the lumbar or sacral region in most instances. The stiff and rigid "poker back" with osteo-arthritic changes seen in skiagrams will clinch the diagnosis, particularly if the patient is elderly and shows a progressive deformity. Treatment is medical a general or specific anti-infectious treatment is indicated if a focus of infection is revealed. Orthopaedic treatment consists of plaster immobilization or by continuous traction on the two lower limbs. Intractable and relapsing cases may require surgical fusion or fixation of the joint. If the lumbo-sacral joint is also involved, this joint also should be fused.

Tuberculosis of the spine affecting the lower spine, lumbo-sacral and sacro-iliac joints :—The diagnosis may be difficult in the early stages; the age of the patient, the insidious onset, the progressive limitation of movement with muscle spasm and protective rigidity and to a lesser extent the poor physique and nutrition of the patient, are suggestive; in the later stages the X-ray appearances of decalcification of the vertebral bodies with absorption and disappearance of the inter-vertebral discs will be conclusive. Treatment is immobilization, specific treatment (*streptomycin* etc.), and if possible early fusion of the spine.

11. *Congenital abnormalities* of the lumbo-sacral region are not often of significance in the causation of low back pain with the single exception of spondylo-listhesis. The latter is of uncertain origin ;

it probably arises from a failure of union of two centres for the posterior arch or it may be due to a relative narrowing of the V lumbar pedicle followed by a fatigue fracture. Trauma in the presence of a congenital defect e.g., sudden and severe or mild and long continued jarring of the spinal column in walking may cause it. Often, there are no symptoms; sometimes there is dull aching in the back and lower extremities, weakness, stiffness, shortening of the torso, waddling gait and even a marked limp occasionally. The iliac crests appear to be high, there is diminished space between the rib and the iliac crest and the xiphoid and the pubis. The bitrochanteric diameter is comparatively increased, there is angulation at the back, asymmetry of the *Michælis* rhomboid, and prominence of the V lumbar body on abdominal palpation. X-rays are diagnostic: a line drawn from the anterior border of the I sacral body projected upwards and forwards passes well to the front of the shadow of the V lumbar in a normal person, but in spondylo-listhesis, the straight edge will cut into the body of the V lumbar vertebra. In adolescents, in recent cases, it may be possible to reduce the slipping by manipulation—vertical traction, pulling the lower limbs and pelvis upwards with the patient lying on his back, and head and shoulders supported on the edge of a table, and hips flexed to a right angle. A double plaster spica is then applied. To prevent re-displacement and in severe cases, posterior arthrodesis is required. A double paraspinal graft cut from the tibia secures excellent result.

Sacralization of a lumbar vertebra may cause pain in 3 ways: a false joint with arthritic joints may be present; there may be a local scoliosis; or there may be a protrusion of the disc above. Pain on the affected side often dates from a strain or twist of the back; later, the pain becomes continuous, walk stiff, but no limp and there may be flattening of the lumbar curve. The musculature of the lower limbs is normal as also movements, sensation and reflexes. There is marked tenderness over the sacro-iliac joint on the affected side and to a less extent down the sciatic nerve. Pain is probably due to a distraction of the joint by the leverage of the abnormal process in lateral movement of the spine. The process impinges on the ilium and strains the ligaments of the joint. Treatment is to remove the affected process, preferably by the posterior route.

Failure of fusion of the laminae may lead to the spines remaining as a separate prominence or kissing spines. The French call it interspinous neoarthrosis or *Baastrup's* disease. The back pain is here due to a false joint between the contacting lumbar spinous processes. Clinically there are no special features; certain occupational conditions—particularly dock workers, may predispose to it. The diagnosis is by a lateral X-ray demonstrating the spinous processes contacting each other. It is treated by excision of the processes and interspinous ligaments.

Abnormalities in a number of mobile vertebræ of the lumbar region may be due to abnormalities of the XII rib or lumbarization of the I sacral or sacralization of the V lumbar. These however very rarely cause symptoms.

Conclusion.—In the evaluation of patients with low back-pain the main points to note are:—The circumstances of the first attack, the treatment previously administered, and the results of posture and muscle training, a careful study of the patient's performance of simple activities, areas of localized tenderness on palpation, etc. If bed rest does not relieve the pain, but increases it, a spinal cord tumour in the lumbar region should be suspected. Successful treatment demands patient investigation and may be also prolonged and often the co-operation of the physician, surgeon, orthopedist and psychiatrist and in almost all instances the services of one well trained in rehabilitation and after-care.

References:

1. Whitman—Orthopedic Surgery.
2. Mercer—Orthopedic Surgery.
3. Watson—Jones Treatment of Fractures.
4. Cochrane—Posture in Relation to Disease.
5. Abstracts of World Medicine.
6. Excerpta medica, Abstracts.
7. Also my own personal records of patients examined and treated in the military hospitals during the II World War and recently as a consultant and Professor of Surgery in the Armed Forces Medical College at Poona.

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Treatment of Plague with Aureomycin

Dr. Ramachandran reports very satisfactory results on the oral administration of Aureomycin in 15 cases of plague at the I. D. Hospital at Latur in Osmanabad district, a hyper-endemic area in Hyderabad State. 12 of the cases were bubonic, and 3 septicæmic. Of these four were males, five females and six children. Two of the three deaths were in the septicæmic group. All the three died within a few hours of admission, as they were brought in a serious condition, the drug having had no time to act. No toxic manifestations were met with. The total dose of aureomycin used, ranged from 2.5 gm. to 7 gm. The initial dose was 250 to 500 mg. six hourly followed by 250 mg. every 8 hours till the maximum noted above was reached which was when the disease was brought absolutely under control. No other treatment was given to any of these 15 cases. The 3 fatal cases had received only about 1.5 gm. before they died.—(*Jour. Ind. Med. Assoc.*, 21:5, pp. 5, 217-218, Feb. 1952).

Underfeeding as a Factor in Infantile Vomiting

In a study of 100 consecutive cases of vomiting in infancy (under six months of age where vomiting was the presenting or major symptom) Wood found that in nearly half the number, the vomiting seemed to be due to maternal mismanagement or feeding difficulties, and by far the commonest fault was underfeeding (as seen in 16 cases particularly). The actual cause of the vomiting in these underfed infants is perhaps the gastric distension caused by swallowing of air which was excessive in 10 of these 16 cases. Vomiting is often accompanied by crying, insomnia, constipation, loss of weight and increased muscle tone and these do not differ very much from those of hunger. Wood enters a plea for greater flexibility in feeding schedules for artificially fed infants.—(*The Lancet*, 5th Jan. 1952, pp. 28-30).

TREATMENT OF TYPHOID FEVER

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TYPHOID fever is common and still accounts for many deaths in and outside hospital practice. The writer has evolved a simple, safe and economical chemotherapeutic combination, which every patient could have with fairly quick results. Sulphaguanidine, hexamine and nicotinic acid combination is suggested for routine oral use along with concurrent parenteral administration of vitamins of the B group. A suggestion is made regarding the possibility of the entry of sex-hormones in the therapeutic field.

Prophylaxis consists of attention to epidemics and carriers, avoidance of direct infection and enforcement of antityphoid inoculation. Notification and isolation of individual cases are recognised practices.

For the individual patient rest, in a soft bed and careful nursing are essential.

Diet must be nutritious, generally liquid, and include good quality protein. In the Government Royapettah Hospital, Madras, the following regime is followed with benefit for the patients under the writer's care. Milk (1½ pints per day), imperial drink (2 pints per day) the white of one or two eggs per day, coffee (2 pints per day), fruit juice (orange juice 4 to 10 ounces per day), and a liberal use of cane sugar or glucose (as Glaxose-D) are allowed. Patients with diarrhoea have arrowroot *conjee*, albumin water, and Horlicks Malted milk instead of pure milk. Constipated patients get barley water with milk in addition to the usual quota.

Multivitamin pellets (6 per day equalling Vitamin A 6 x 2500 units, Vitamin D 6 x 200 units, Aneurin 6 milligrams, Riboflavin 9 milligrams, and Vitamin C 6 x 37.5 milligrams) are also given to every patient. In patients with dysphagia, toxicity or unconsciousness, nasal feeding is the rule. In one patient whose condition was desperate, intravenous protein-hydrolysate was given with marvellous results.

After the temperature remains normal for three consecutive days, the boiled portion of soft bread is started, and later soft rice with pepper water (boiled and salted tamarind water, flavoured too) or thin butter milk is given; and still later, soft boiled vegetables are added to the rice. Hydrotherapy has its due place, though its necessity is fast receding.

As regards drug treatment, modern advances in chemotherapy have revolutionised the therapeutic regimen. Penicillin, Sulphathiazole, Streptomycin have no place. Remarkable success is achieved with chloromycetin. Sir Philip Manson-Bahr writes: "At the same time, it was discovered that the drug also possessed an

astounding curative action in 10 cases of typhoid fever, but it did not always exterminate *S. typhi*, a remarkable fact which has since been confirmed by T. E. Woodward, F. Murgatroyd, and W. H. Bradley, and it did not appear to be active in typhoid carriers." Chloromycetin (Chloramphenicol, Parke-Davis) is the first antibiotic synthetically produced for therapeutic purposes, and is an aromatic nitro-compound D (-)-threo-2-dichloroacetamido-1-p-nitrophenyl-1-3 propanediol. It is crystalline and packed in capsules, orally and rectally effective, and is known to be compatible with sulpha drugs and other antibiotics. The known side effects are nausea, vomiting, headache, skin rashes, and diarrhoea, as also an abnormal (alarming) blood-picture.

Chloromycetin is available in capsules of 250 mg. each. The oral dosage recommended is 23 mg. (say 25 mg.) per pound of body-weight per day in the acute stages, and after convalescence sets in, 10 to 12 mg. per pound per day (roughly half the original doses). A total dosage of 10 to 15 grams is generally advised, chronic cases requiring a little more. In children 15 to 25 mg. per pound per day is usually sufficient. The dosage per rectum is higher by 25 per cent; and punctured capsules are inserted into the rectum (particularly in small children) after a preliminary enema.

The writer's general scheme for chloromycetin has been, for adults 500 mg. (2 capsules) to start with, and later followed by 250 mg. (1 capsule) three hourly day and night till the temperature settles to or towards normal with an all round clinical improvement, which usually occurs in 2 to 3 days; and after normal temperature is maintained for three consecutive days, a further course of 250 mg. every 4 hours for 3 days; and 250 mg. every 6 hours for 3 or 4 days finally, ends the chloromycetin *grip* on the patient. This abridged dosage results in considerable economy and in no way seems to favour any relapses as compared with the controls receiving orthodox treatment. Each patient gets at the same time two c.c. of a good brand of vitamin B complex by intramuscular injection daily or on alternative days, which is equivalent to about 50 mg. of thiamin hydrochloride, 2 mg. of riboflavin, 2 mg. of pyridoxine hydrochloride, 100 mg. of nicotinamide, and 8 mg. of calcium pantothenate. This helps to overcome nausea, vomiting or diarrhoea or the sudden drop of body temperature to subnormal with a collapse-like condition, which are noticed in the controls, who did not receive vitamin B complex at the same time. The niacin in the B-complex has been recognized to control delirium and diarrhoea commonly experienced in enteric infections and this fact was already (1943) stressed by the writer. Vitamin C is given as a rule to every enteric patient as the writer is convinced that it is ideal in controlling vomiting, particularly of the toxic type appearing later in the illness; and this fact was stressed by the writer so early as 1939. Riboflavin certainly checks oro-lingual ulceration and even parotitis; and the

other elements of the vitamin B-complex probably help to sustain the normal response from bone marrow.

The large majority of patients treated by the writer belongs to underprivileged class with a subnormal nutritional level. The regimen of treatment as outlined above is safer and cheaper. The writer has established a strong therapeutic synergism between chloromycetin and vitamin B-complex; and therefore, their routine concurrent use has been successful in the wards. Chemotherapy extending over weeks, does automatically demand supplements of vitamins of the B group, whose bio-synthesis in the bowel gets hampered by disease and by treatment; and there is thus a strong justification for the administration of the vitamins of the B group particularly, if not all the known beneficial ones.

During convalescence, relapses of typhoid fever, oro-lingual ulceration, vulvo-vaginitis, proctitis and colitis, and pruritus with boils are common in the writer's experience.

It is the impression of the writer that chloromycetin therapy may not be the last word on the subject. It will hold the field till a better product capable of inducing a direct lethal effect on *S. typhi* is found and made readily available on a large scale for daily therapeutic use. Would chloromycetin and the simultaneous administration of the antigenic fractions (non-toxic) of *S. typhi* improve the present therapeutic position? This can be almost on the basis of toxoid and antitoxin therapy of diphtheria and demands the energetic attention of persons engaged in immunological research. (*Vide Table page 166*).

The writer has tried other lines of treatment with a view to economising. Garlic (as Allisatin-Sandoz) was used to no purpose. A safe and cheaper therapeutic routine is outlined below. Orally, Sulphaguanidine tablets (6 for a child of six years and 12 for an adult, per day) with the following simple recipe as a routine.

R Hexamine	.. gr. xv to xxx
Sodii Bicarb	.. gr. xxx to lx
Sodii Salicylas	.. gr. xv to lx
Spts. Ammonii Arom.	.. ℥ xv
Syrup	.. 3 iii
Aqua ad 3 iii (Fiat Mistura); Dose, 1 ounce thrice a day after feed.	

Vitamin B complex is given daily or on alternate days by intramuscular injection. The diet is the same as for patients under chloromycetin therapy.

The fever runs a shorter and mitigated course, and the whole illness is uneventful without complications. Possibly there is some therapeutic benefit in the combined use of Sulphaguanidine and Hexamine. Therefore, a product combining Sulphaguanidine, Hexamine and an added amount of nicotinic-acid-amide is desirable. This regime is meant not only for the poor patients but

also for children and the aged, in whom the illness runs a naturally mild course. Further, chloromycetin induces severe nausea, vomiting and diarrhoea in children.

Do the sex-hormones help (as in adults) to support the virulence of the infection in the host? This question is prompted by the following case. A girl aged 20 years (No. 5 in the tabular statement) had her menstrual period, and during that particular time progress was interrupted and the temperature rose very high (104°F) with delirium, dysphagia and pulmonary oedema and the picture was grave with an unexpected set-back. Ultimately as the period passed off, the storm was over, and the patient gradually settled down to normal temperature leading to uninterrupted recovery. This experience is

Table of Patients Treated with Chloromycetin

Name, age, sex etc.	Day of illness	Admitted	Discharged	Treatment. Days for response	Comment
1. Meera. F. 12 years.	12	15-5-'51	26-5-'51 cured.	Had 24 capsules outside; and response in 4 days. Routine.	Early small dosage harmful.
2. Indira. F. 12 years. Daughter of 3.	8	4-5-'51	11-5-'51 cured.	Routine therapy given. Response 2 days.	
3. Jambakavally F. 42.	10	4-5-'51	11-5-'51 cured.	Routine therapy given. Response 2 days.	Developed relapse after 2 months.
4. Fernandez. Male, 35.	6	31-5-'51	28-6-'51 cured.	Routine. Response 5 to 7 days.	Early Widal negative; later positive 1 in 400 for S. typhi.
5. Chittiamma. F. 20 years.	11	5-12-'50	4-1-'51 cured.	Routine. Response 3 to 4 days.	Menses on 10-12-'51.—Flared delirium and hyperpyrexia. Convalescence developed orolingual ulceration and vaginitis.
6. Mehanna Rao. M. 25 years.	12	30-11-'50	23-12-'50 cured.	Routine. Response 4 to 6 days.	Outside Widal negative 1 in 25; treated with Aureomycin and apparent cure with urine reducing Benedict's solution; and later relapse with Widal positive 1 in 400 for S. typhi. Convalescence showed gastroenteritis; cure with Livogen containing liver extract, B complex and Haemoglobin (B.D.H.)

specially to be noted as it may be of frequent occurrence in private practice. Ovarian hormone (follicular) probably lowered the tissue resistance or increased the dormant virulence of the infection. On this basis, is it possible to mitigate the illness in sexually mature adults, in whom S. typhi claims the highest mortality, by giving testicular or luteal hormone to females and the ovarian follicular hormone to males? In this connection it may be mentioned that ovarian oestrogenic hormone is said to prevent orchitis in "Mumps."

Symptomatic treatment:—Headache, insomnia, delirium, hyperpyrexia, and toxic restlessness demand hydrotherapy, which with the writer's routine of nicotinic acid orally and vitamin B complex by injection, has practically become unnecessary and obsolete.

Saline with glucose 5 per cent. has been occasionally given for asthenia and toxæmia, preferably with adrenal cortex and vitamin C. Cortisone may be found ideal at this juncture. Enemata for constipation; and diet merely adjusted with albumin water and Horlicks malted milk for diarrhoea are to be remembered. Under the writer's care the patients do not need these, as B complex therapy prevents them.

Cardiac debility may need stimulants like nikethamide as also vitamin B₁ and C with glucose.

Bacilluria requires urinary antiseptics like Hexamine and Sulphatriad tablets.

Intestinal hæmorrhage needs classical attention (morphine, vitamins K and C, even a blood transfusion) and early resumption of feeding. Perforation takes the patients to the surgeon as also bone lesions and abscesses.

[The writer is thankful to Dr. P.R. Kalyanasundaram, M.B., B.S., Superintendent, Government Royapettah Hospital, Madras, for all the encouragement received.]

References:

1. Case Records of the Government Royapettah Hospital, 1950 and 1951.
2. The Medical Annual, 1949.
3. The Medical Annual, 1950.
4. Sarma, A. V. S.—A New Approach to Pathological Process and Therapeutic Possibilities, The Antiseptic, Aug. '50.
5. Idem.—The Use of Nicotinic Acid in the Treatment of Typhoid Fever, Jour.
6. Ind. Med. Association, Vol. XIII, No. 8, December 1943.
7. Idem.—Vitamin C in the Later Vomiting of Typhoid Fever, Ibid, Sept. 1939.
8. Paranjyethi, H. S. and Sarma, A. V. S.—Chloromycetin Therapy of Typhoid Fever, The Antiseptic, December, 1950.

Sulphonamide Hæmaturia (Frequency of Injury to the urinary tract as estimated on the basis of 6084 cases treated with different sulphonamides.

Nissen and his coworkers review 6084 cases of patients treated with sulphonamides at the Frederiksberg Hospital, Copenhagen with special reference to the incidence of hæmaturia. The newer sulpha drugs, such as sulphadiazine or sulphamerazine which are excreted more slowly, have a slightly higher tendency to cause renal damage than the older, more rapidly excreted sulphonamide drugs. The lowest incidence was found with lucosil (sulphamethylthiadiazole). Out of 2078 cases, hæmaturia was demonstrated chemically in 2.3%. Children tolerate sulphonamides much better than do adults; the incidence of hæmaturia increases with age. In no case was the damage to the kidneys permanent.—(Eng. Summary. Act. Med. Scand., 138, 1950.)

MODERN THERAPY OF INFANTILE CIRRHOSIS

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INFANTILE cirrhosis is fairly common among Brahmin children (particularly the male children) in South India. The exact causal factor is not known. In this paper, I propose to record only the broad outlines of treatment of the condition.

Diet.—This is an important factor in the management of a case of cirrhosis of the liver. Dietetic irregularities and indiscretions such as irregular feeding, feeding whenever the child cries, too frequent feeds, unsuitable articles of food (over boiled milk, undiluted milk, rich farinaceous foods) should be avoided. Fat and fat-containing foods should be totally eschewed from the cirrhotic child's diet, liberal amounts of good quality proteins, such as protein hydrolysate, meat, peas, sprouted nuts, egg-yolk and moderate quantities of carbohydrate such as glucose, rice, potatoes, cereals, honey, milk-sugar, should be given. Systematic feeding at regular intervals and allowing the child to play about in the open air under bright sunlight, conduce to the improvement of the general health of the child.

Essence of chicken with vitamin B₁ added to it, Nestomalt, Horlicks Malted Milk, Cow and Gate half-cream (blue label) milk and such other wholesome patent foods may be given but they must be supplemented by fruit-juice—tomatoes, oranges or grapes. Dried figs may be given if the child can chew them, they help to relieve constipation and maintain the normal working of the bowels. Vegetable soups with bread and sprouted seedlings will suit admirably well for breakfast. The mid-day meal should consist of dhal, soup, and curds freed of fat, sweet butter-milk, or Nestle's Eledon. Tea and barley water may be used instead of coffee, cocoa or Ovaltine. The night-meal should be very light and may be similar to the mid-day meal if the child is not running a temperature. Restful sleep and freedom from constipation are equally important in the management of cirrhosis. Purgatives like castor oil (any brand), liquid paraffin, etc. and enematas of glycerine or soap and water should all be avoided. Regular bath or sponging with tepid water will help the child to feel bright and cheerful. The children should be given light clothing during the hot months and warm clothing during the rainy winter season. The food which adults take for their daily meals, is not suitable for the children and should not be given to them.

Calomel or Hydrargyri *cum* creta, senna leaves or/and pods as infusion, epsom salts, milk of magnesia, tartarates, or sodium phosphate may be used as purgatives. These are however, unsuited for children who are markedly anæmic, emaciated and dehydrated; such children should be given plain olive oil or in the form of an

emulsion along with milk or fruit juice. Brooklax or purgolax or for the matter of that any "lax" which contains phenolphthalein should never be given, as they are violent purgatives.

The daily diet of our adult population at the present day is itself woefully deficient in many of the proximate principles necessary for healthy living and this is reflected also in the health of the younger ones, particularly in the more delicate and sickly children. These children should be given vitamins B₁, C and A in the form of pills or drops or by injections. Adexolin and Haliverol which contain the maximum amount of Vitamin A are recommended, and these may be given along with the feeds. Liver-extracts, particularly Neo-hepatex, Vitamin B₁₂, iron as ferrous sulphate in case of iron deficiency, marmite and folic acid are indicated in cases where the children are suffering from a severe type of anæmia.

Drugs.—We now have in our therapeutic armamentarium some new drugs like Methionine, Cirossine, Meonine (all Methionine preparations) Choline and these can be administered alone or together orally or by injections (by drip), 3% solution autoclaved with dextrose or pyrogen-free distilled water being used for the purpose. Some of these drugs are available as syrups (with vitamins added) in the market, and they are all useful in the treatment of liver troubles. The dose is one gm. of Choline and one gm. of Methionine by mouth every day. Mechositol, is a combination of Methionine, Choline, Inositol, Vitamin B₁₂ and liver fractions of fresh liver, in liquid form. One teaspoonful of this thrice a day after food greatly improves the condition of the patient. Vitamin K as Synkavit, Calcium, Glucose and vitamin C are all useful in the treatment of jaundice. The next grave complication after jaundice, is ascites and hæmorrhage. The mercurial diuretics such as Salyrgan, Esidrone, Mersaly, yield good results when given intramuscularly, (one c.c. per dose). Saline purgatives and pulvis jalapæ may be used to drain the body fluids. Paracentesis should be resorted to only when the medicinal treatment fails to relieve the condition.

The antibiotic drugs aureomycin and terramycin administered as syrup in capsules or in drops have been found to be safe and effective, in controlling the temperature and the diarrhoea. The urine and fæces are cleared of their foul smell by the use of 500 mg. of these antibiotics. Terramycin appears to be more effective than aureomycin in this direction. Crystalline penicillin helps to bring down the temperature and resolve lung complications, due to broncho-pneumonia. Sulphonamides like Sulphadiazine and Sulphathalyl also act well, but more mildly and slowly than the antibiotics. Pure Zinc Oxide gr. i, with Pulv. Rhei gr. iii, and Calomel gr. $\frac{1}{4}$ may be given in honey, in simple uncomplicated cases of cirrhosis. Thyroid, anterior pituitary and other gonadotrophic hormones are absolutely of no value in infantile cirrhosis.

Whichever line of treatment is followed and whatever drug or combination of drugs is selected for administration, it is well to remember that the treatment is necessarily a prolonged one and takes time to yield results. Dramatic results cannot be expected particularly when the cirrhotic child, is usually taken to the allopathic doctor at a late stage with the liver severely damaged. The treatment is tiresome to the patient, to his relatives and to the doctor too. It often happens that the impatient parents drift on to unqualified persons who offer specific cures for this particular malady, needless to say with dire results in many cases. If the treatment is carried out on scientific lines and persisted in by the patient, modern therapy which has now quite a large number and variety of drugs at its disposal, can certainly produce satisfactory results. Cirrhosis of the liver in children need no longer be considered an incurable and hopeless disease. With patience and faith in the doctor and the drugs, parents will stand to gain and save the lives of numerous cirrhotic children.

References :

1. Narayanamurthi, K.—Ind. Jour. Pediat., VI, 22, April 1939.
2. Narayanamurthi, K. and Tirumurthi, T. S.—Ind. Jour. Pediat., VI, 22.
3. Tirumurthi T. S., and Narayanamurthi, K.—Jour. Ind. Med. Assoc., III, 9, 505-508, 1939.

Strict Bed-rest Unnecessary in Treatment of Heart-Disease

Levine reports that he has abundant clinical and physiological evidence to support the view that strict bed-rest is deleterious to patients with congestive heart failure. There is abundant reason to believe that in the presence of heart failure, the heart gets more rest with the patient propped in a chair with his feet down than if he were allowed to be recumbent in bed, even if the head and back are elevated.

Levine advises that patients with threatened or even evident congestive heart failure be treated, *not in bed*, but in a comfortable chair and when they go to bed at night for sleeping, the beds should be lifted on the head-side by 8 to 9 inches blocks of wood or stone, so as to encourage gravity to keep body fluids in the legs rather than in the lungs.

The same principle has been applied to cases of acute coronary thrombosis (after the shock-stage has passed off). In his experience extending over 70 cases with acute coronary thrombosis who were placed on chairs for varying and increasing periods of the day, from the very first week of the onset of symptoms, there were only 7 deaths. This method of treatment has both physical and psychic advantages over the strict-bed rest method of treatment.—(*Am. Heart Jour.*, 42 : 406, 1951).

ADVANCES IN THE TREATMENT OF JAUNDICE

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The objectives in the treatment of jaundice are the following:—
(1) To treat the cause; (2) to relieve the symptoms; (3) to compensate for disturbances both hepatic and extra-hepatic; and (4) to prevent and when necessary repair the damage to the hepatic parenchyma.

The therapeutic measures adopted during the last 5 years with these objectives in view have brought down the mortality considerably in all types of jaundice with varying degrees of liver damage.

Rest:—Whatever be the type of jaundice, the patient must be absolutely confined to bed. Prevention of physical exertion by complete bed-rest is absolutely necessary in jaundice especially when it is due to liver damage, caused by virus infection. Rest in bed reduces the undesirable jarring of the liver, and reduces metabolism; and consequent detoxification occurs of metabolites by the liver. Rest is thus particularly necessary in the acute and the convalescent stages of hepatic jaundice.

Diet:—Greatest consideration is to be given to the diet of the patient. It has been generally accepted that the diet should be high in calories, vitamins, carbohydrates and proteins. Fat must be reduced to the absolute minimum in the acute conditions and just enough may be allowed to make the high caloric diet more palatable. Fats of animal origin, excepting the dairy products must be totally avoided. An average or below the average quantity should be allowed to patients with chronic jaundice, e.g., cirrhosis. In cases with poor digestion or poor absorption and of chronic jaundice with a liability to pathological fat storage in the liver, the fat intake should be cut down drastically. The intake of fat is, therefore, to be regulated by the state of digestion, absorption and storage in the liver.

Carbohydrates should be easily digestible and 350 to 500 gms. daily by mouth or when necessary a portion by the parenteral route may be given. The diet should be given in small but frequent feeds; and in some cases small doses of insulin may be administered to help carbohydrate metabolism.

Proteins of high biological value are necessary to rebuild the damaged liver tissue. They contain many amino acids necessary for the normal metabolism of the liver.

In addition to a diet rich in proteins, patients with jaundice generally require supplements of all the vitamins. It has been found by investigation that the vitamin A content of the plasma becomes very low in acutely jaundiced patients though the liver may have large stores of it, suggesting that the vitamin A in the liver is

not made available for circulation. In chronically jaundiced patients, vitamin A stores get rapidly exhausted. Large doses of vitamin A 50,000 to 100,000 I. U. daily should be given orally or parenterally. Cod liver oil must *not* be given as the fat in it is liable to impair the liver further.

A dosage of 100-300 mg. daily of vitamin 'E' is also recommended, as it has been found to prevent the necrosis of liver tissue in experimental animals. Vitamin C (500-1000 mg. daily) should be given to jaundiced patients, because it promotes carbohydrate and protein metabolism and prevents fat deposition. Vitamins of the B-complex group, are of great importance in jaundiced patients. Liver extracts, liver powders and yeast powders have been found to be of great benefit. Patients with liver diseases should receive large doses of vitamin B₁₂, (30 mg. or more) daily.

MISCELLANEOUS MEASURES:—In jaundice especially when due to liver disease there is definite sodium retention which may cause therefore, be kept low taking care to see that it does not lead to hypochloræmia. Salt substitutes may be allowed. Pepper, mustard and other spices and condiments should be avoided. Alcohol must be completely stopped. Frequent small meals in as pleasant a form as possible are usually best suited to patients with anorexia, nausea or vomiting, supplementary protein (hydrolysates) should be given after meals in order to maintain the appetite, unimpaired.

MEDICINAL TREATMENT:—Calcium gluconate injections (1%) 10 c.c. twice a week have been recommended. A course of ten or twelve will suffice.

Laxatives:—Bowels must be kept open and if necessary Carter's liver pills 2-4, Bicolates 1-2 at bed time or saline given in the morning.

The following mixture has been found very useful especially in the acute conditions:—

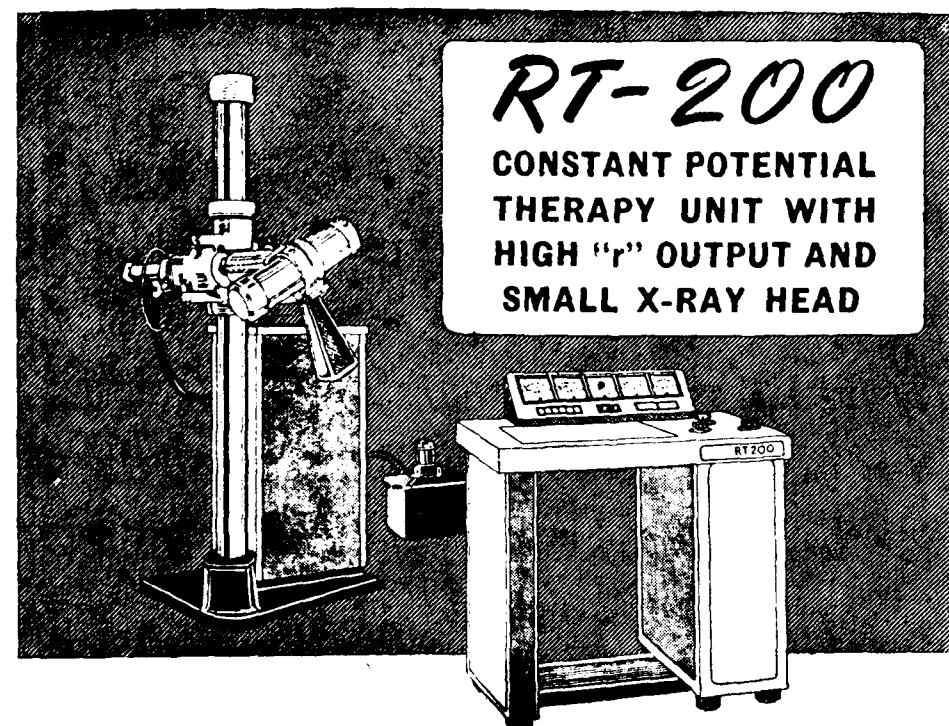
R Hexamine	... gr. vii
Pot. Cit.	... gr. xv-xx
Ext. Taraxaci Liq	... ℥ xxx
Syrup Aurantii	... 3ii
Aqua ad	... 3i

One such dose should be given 3-4 times a day.

Injections of crude liver extract (2-4 c.c.) intramuscularly every other day act as general tonic.

Convalescence.—Return to normal diet and routine activities should be gradual. Fat in the diet must remain restricted and alcohol strictly forbidden. Overwork and exposure to infection should be scrupulously avoided.

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Thornstein Guthe, M. D., M.P.H.,
Chief, Venereologist, W. H. O.,
Geneva, "Current Concepts of the
Treatment of Syphilis", 1951.

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TREATMENT OF ACUTE TRACHOMA

S. C. ROY, M.B., B.S.,

Ophthalmic Surgeon, L. M. Hospital, Asansol.

TRACHOMA is endemic in many parts of India and it causes much disability and often blindness in neglected cases. It is common in the Middle and Far East. In fact it is common in those places where there is less rain and more dust, sun and glare. Trachoma is more common among the poor as they live in unhygienic conditions which greatly help in the spread of the disease. In most countries of Europe and America an organized fight against this disease has been started by providing facilities for proper eye-treatment and also by improving the conditions of living particularly of the masses.

Trachoma, like many other diseases is manifested in two forms—acute and chronic and both are equally common. Trachoma is always acute to begin with. In course of time untreated or improperly treated cases become chronic. The chronic type comes to the notice of ophthalmologists more frequently because of two reasons. *Firstly* the patient with the chronic type, is so badly disabled that he is obliged to seek medical advice very often and from many doctors in many places. These eyes are also vulnerable to other mild infections. *Secondly*, the acute form is usually misdiagnosed as simple catarrhal conjunctivitis or a cold in the eyes, often by the patients themselves. This misdiagnosis is not confined to the lay public who generally treat themselves before consulting a doctor. Then if they consult a doctor at all, they consult a general physician who usually treats the case as one of simple acute conjunctivitis. The patient gets temporary relief. These cases suffer from occasional exacerbations and a radical cure becomes more and more difficult as the duration of the disease becomes longer. Ultimately these cases turn to be chronic often with super-imposed complications and dangers. Trachoma probably causes more mischief than any of the other eye diseases in our country.

It therefore, becomes all the more important to diagnose trachoma even in the early acute stage, when it is much easier to treat than when it gets chronic. I would mention here, that in this group I have not included acute exacerbations of chronic trachoma or any super-imposed infection in the chronic trachomatous eye.

Acute trachoma presents the following picture. Usually both the eyes are affected, at the same time. There are all the signs and symptom of acute catarrhal conjunctivitis but the discharge is watery and much less in quantity. It is not mucopurulent or purulent. There is not much swelling of the eye lids, the conjunctiva of the upper eye lid is highly inflamed, its pattern lost and a velvety appearance with hypertrophy of the conjunctiva is noticed, instead

of the normal picture. Granules are not found at this stage. The whole of the upper eye lid conjunctiva is angry and congested. This congestion is present in the other parts of the conjunctiva as well. These patients suffer from paroxysmal attacks of sneezing and any irritation of the eye will provoke an attack. Probably the lacrymal secretions irritate the nasal mucosa and cause sneezing. There is typical pannus at the upper part of the cornea with infiltration at the ends of the vessels. These vessels grow from the limbus and they gradually travel towards the centre of the cornea. In every case of acute conjunctivitis careful search should be made for these minute vessels and these are the most dependable signs of the disease, and so acute trachoma should not be diagnosed as such if these signs are not found at repeated careful examinations, preferably with a corneal loupe. So cases of acute conjunctivitis which fail to get cured for a considerable time under the usual treatment should be looked upon with suspicion. As has been already mentioned, the treatment of acute trachoma is easier than when it becomes chronic.

We are still in the dark, about the cause of this malady. The virus-theory, the inclusion-body theory and the infection-theory have all had their advocates. From clinical studies it would appear to be an infection which is conveyed from man to man by contagion and which is helped by dirty habits, filth, unhygienic ways of living, sand, dust and heat etc. Free mixing in schools and other places of public resort increases the chances for a rapid spread of the disease.

When we proceed to consider the treatment, the question of prophylaxis stand first. Avoiding mixing with people having chronic discharges from the eyes, proper care of the eyes and medical consultations at the proper time are some of the factors which are necessary to prevent the spread. Well-ventilated rooms, fresh air and sunshine will go a long way in eradicating the disease.

TREATMENT.—Medicines which are used in the treatment of acute trachoma are:—

Cleansing agents.—Including fomentations:—These help by washing away the deleterious discharges from the conjunctival sacs. Hot fomentations also do the same by increasing the secretions and thereby draining away the harmful matter. Of the many agents that are used, normal saline solution is the best in my experience, for it does not irritate and it has a physiological action. This can be used as many times as required, but usually three times a day will be sufficient. Other agents used are:—Acid Boric, Hydrargiri perchlor and Acriflavine solutions. Several fancy patent eye-lotions are also used for this purpose.

Antiseptics.—Formerly antiseptics were used extensively and in fact, the only remedies relied upon. These have no direct effect on the disease but by curing secondary infections, help in the

ultimate cure of the disease. Antiseptics are of different kinds and all of them help to give quick relief by their action on the infecting bacteria. Many of these antiseptics are however, irritants to the eye. The modern tendency is to avoid irritants. The importance of antiseptics has greatly diminished with the advent of the sulpha drugs and antibiotics. The antiseptics used are solutions of some silver preparation, copper sulphate, mercurochrome etc. Strong solutions were used in the past with the idea of killing the trachoma granules and follicles. They did more harm than good. Antiseptic drugs are not absolutely useless; they have their place in the treatment of chronic trachoma. Strong medicines like sticks of silver nitrate or copper sulphate are rarely, if ever used at present. They are harmful and in cases where the cornea is involved they may cause further damage. These antiseptics are used as ointments also. The role of antiseptics in the treatment of acute trachoma is insignificant and so they are fast going out of vogue.

The sulphonamides.—The advent of sulpha drugs has revolutionised the entire field of therapeutics, in all spheres of medicine and the results of their use have been exceedingly satisfactory, even in grave and serious conditions. This is reflected in the treatment of eye diseases as well. Trachoma is a septic process—an infection, the clinical picture of which is that of an inflammation. The use of sulpha drugs is therefore, called for. These drugs are used in all forms—i.e. as injection, tablets, drops of solutions of various strengths, ointments and insufflations. A 30 per cent. solution of sulphacetamide is extensively used with very good results. This should be instilled into the eyes as often as 4 to 6 times a day. At the same time, the drug should also be administered by mouth and as ointment should be applied to the eyes. In intractable cases, insufflations of sulphapyridine or sulphathiazole may do good. The eye should be kept bandaged, if insufflations are used and to get efficient results, these should be used two or three hourly for 2 to 3 days. Though sulpha drugs are not to be considered specifics, they act marvellously in some cases.

Penicillin.—This is the drug of choice. Solutions containing 1000 units per c.c. should be used as drops hourly for 3 days. The maximum effect is obtained within this time and if any case fails to respond during this time, penicillin drops should be stopped. Penicillin instillation should be continued during the day and at bed-time some penicillin ointment may be applied to the lids. This drug should be used parenterally also at the same time, aqueous solution being used three-hourly. Up to 20 lac-units of this drug should be used to get appreciable results. Penicillin instillations with injections of the same drug, usually give the best results in cases of acute trachoma.

Aureomycin and the other newer antibiotics, have failed to give good results in my hands. As a practical means the following

treatment may be followed in cases of acute trachoma with good results:—(1) Hot boric compress and normal saline washes, twice a day. (2) Atropine drops (1%) once a day till the eye condition clears-up completely. (3) Penicillin drops, every hour. (4) A bland ointment to the eyes at bed time. (5) Sulpha tablets (6 tablets a day on an average for an adult) by mouth. (6) Three-hourly injections of an aqueous solution of penicillin.

This treatment should be continued for 2 to 3 days during which time the acuteness of the symptoms will generally pass off.

Penicillin drops may in rare cases, cause a violent reaction in the eyes e.g. acute redness, blepharospasm, minute eruptions on the skin of the lids and cheeks and acute swelling of the eyelids. There may be urticarial rashes also; and if these occur, penicillin drops should be immediately discarded and the case should be treated with non-irritating soothing eye-lotions and eye-drops.

After 2 or 3 days, or as soon as the allergic reactions have subsided drops of sulpha drugs (30% sulphacetamide solutions being in common use) should be used in place of the penicillin drops. Two or three drops a day will suffice. This is continued for a week, after which ordinary treatment with antiseptic eye-drops is given for a week or two or till the eye becomes absolutely quiet and normal. In most of the cases the whole course lasts for about 3 to 4 weeks. It is imperative that the pannus should disappear completely and the upper eyelid should become normal to look at, before a case is discharged 'cured'.

Injections of penicillin are necessary only in some bad types of cases; the large majority of cases do well even without them.

The course of treatment outlined should be followed by tonics, light exercise and good easily digestible and nourishing food, if a relapse is to be prevented.

Treatment of Stevens-Johnson Syndrome

This syndrome is now an established clinical entity. It is a febrile disease characterised by purulent conjunctivitis ulceromembranous stomatitis, ulceration of the genitalia and anus, widespread severe eruptions of vesicles, bullae and erythematous lesions on the skin, occasionally accompanied by pulmonary consolidation. Its average duration is 3 to 4 weeks and its mortality 10 per cent. It is most probably a virus infection with the inevitable secondary bacterial infection. Blindness from corneal ulceration and scarring is the most serious sequel. Treatment has consisted mainly in local and palliative measures. Sulphonamides, penicillin, or streptomycin, systemically or locally applied, only reduces risks of secondary infection but has no effect on the duration of the illness or its mortality. Aureomycin is reputed to have produced more dramatic results and recently ACTH was found by both Church and Lynas to effect quick improvement in 12 hours followed by rapid recovery. The dosage used in yet another case by Wamcock *et al* was 25 mg. ACTH eight hourly for 2 days and then daily for 3 days—total 225 mg.

In its annotation the *Lancet* says that aureomycin is less likely to cause unpleasant side-effects and easier to come by, than ACTH and should therefore, be promptly administered.—(*The Lancet*, 6-1-1952, p. 40).

MODERN TREATMENT OF HYPOPYON ULCER

S. P. CHHAYA, M.B., B.S.,

Hony. Ophthalmic Surgeon, Padmakunverba Hospital, Rajkot.

HYPOPYON ulcer or *ulcus serpens corneae* is one of the most dangerous diseases of the eye, on account of the malignancy of its course and destructive nature; if not arrested early, it results in blindness through a dense centrally situated corneal cicatrix which cannot be cleared and in which the iris is almost always incarcerated leading to secondary glaucoma and staphyloma. It may lead even to panophthalmitis and phthisis bulbi, if suppuration invades the deeper parts.

In view of its rapid malignant course, prompt and energetic treatment is required.

The treatment is partly medical and partly surgical. In mild cases, in which the hypopyon is not yet large and has not produced perforation, the treatment is as under:

As soon as a case comes under treatment the ulcer especially the progressive portion of the margin, should be cauterized by the electric cautery or by pure carbolic acid after proper cocaineisation.

On the next day a subconjunctival injection of crystalline penicillin 1,000,000 (one million) units should be given:—

The technique is as under:—

Dissolve crystalline penicillin G 1,000,000 (one million) units in $\frac{1}{2}$ c.c. of triple-distilled water. Add to this solution either $\frac{1}{2}$ c.c. adrenalin 1 in 1000 or $\frac{1}{2}$ c.c. of 2% procaine solution. When procaine is added, the crystalline penicillin should first be dissolved in triple-distilled water and then procaine or procaine solution should be added. Otherwise, the crystalline penicillin may not dissolve. Here at the Padmakunverba Hospital, the writer was adding adrenalin at the beginning but has discarded it lately in favour of procaine, as adrenalin was found to be more painful and to give rise to palpitation and cardiac discomfort in many patients. The latter is tolerated better and also helps to maintain a high level of penicillin concentration. We give three subconjunctival injections on alternate days. When the infection is under control as evidenced by the disappearance of hypopyon, we switch over to penicillin ointment 100,000 (one lac) units in one gramme 4 hourly, for about five days. Atropine and dionine are used all the time. Atropine is absolutely essential to deal with the concurrent severe iritis. After about a week, the penicillin ointment may be substituted by iodoform ointment to bring about cicatrization. Pads and pressure bandage should be used for about three weeks to prevent the scar from getting ectatic.

After the cicatrix gets firm and the iritis subsides we perform an irideotomy, preferably peripheral, as early as possible to obviate secondary glaucoma.

In all severe cases and in mild cases resisting treatment in which the hypopyon is large and the ulcer threatens to perforate, surgical interference by way of paracentesis or Saemisch's section should be instituted at once without delay. Otherwise a huge prolapse of the iris would result. Even in favourable cases arrested early by the above treatment, the performance of an optical iridectomy in the clear portion of the cornea is necessary to restore vision, as a dense centrally situated opacity usually remains.

Any lesion of the conjunctivæ such as trachoma and lacrymal-sac infection must be treated simultaneously.

In cases due to small-pox the sticking together of the edges of the lids must be prevented by the application of a suitable ointment. In view of the usually grave prognosis, the results achieved by us have been satisfactory. The writer has had very encouraging results with subconjunctival penicillin injections in the above concentration in deeper intra-ocular sepsis also, post-operative or otherwise.

"Nath Kupa"

New Alfred High School, Rajkot.

Treatment of Infective Hepatitis

Dr. L. E. Glynn of the Canadian Red Cross Memorial Hospital, Taplow, in his instructive article on Infective Hepatitis, states:—Though there is no specific chemotherapeutic agent against the virus of infective hepatitis, the therapeutic trials made by several observers during extensive epidemics in recent years have resulted in great uniformity of opinion about the best methods of reducing the duration of disease and the likelihood of sequelæ.

Rest in bed during the time jaundice persists is most important. Ambulation only for toilet purposes may be permitted only when bile has disappeared from the urine and bed-rest enforced at all other times, till hepatic enlargement and tenderness have subsided. Return to full activity must be gradual and a fortnight's convalescence should be maintained.

Recent experimental work has stressed the importance of protein in maintaining the integrity and function of the liver. Fatty diet has been found to enhance the toxicity of the liver poisons. The patient's diet should therefore, be rich in protein and carbohydrate but poor in fat. The daily diet should consist of 150 g. of protein, 350 g. of carbohydrate, and 50 g. of fat to provide in all 2500 calories, which is quite ample. Meals should be given in small quantities and at frequent intervals. In chronically malnourished patients supplements of sulphur-containing amino-acids may reduce the mortality from acute yellow atrophy. These may be given as methionine in tablet form (3 to 5 g. daily). Vitamins A and E should be given to patients in whom little bile is reaching the intestine. Vitamin A in daily doses of 25 to 50,000 I.U., and Vitamin E in a daily dose of 100 mg. should be given in such cases. A crude liver or yeast extract is more satisfactory than the purified water soluble vitamins of the B complex. Constipation should be countered by saline laxatives. If a sedative is needed Chloral hydrate and paraldehyde are the safest. Alcohol should be totally avoided for several months. Nausea and vomiting which are common should be treated symptomatically; small meals and attention to the bowels are usually sufficient to control them. In extreme cases, patients may have to be fed parenterally.—(*Br. Med. Jour.*, 26-5-1951, pp. 1198-1200: Refresher Course for Practitioners).

REVIEWS OF BOOKS AND PERIODICALS

We have received the special Antibiotic number of the Indian Medical Forum a Journal published in Calcutta, under the direction of a board of editors, all of whom are eminent medical men of vast experience. The chief editor is Dr. A. K. Roy Chowdhury of the Lake Medical College, Calcutta.

The special number contains very valuable and instructive articles bearing on all aspects of antibiotic therapy. The authors of the different articles have ably discussed their merits and applicability in various conditions and have also reviewed the literature on the subject in the light of our present knowledge of the subject.

NEWS AND NOTES

Family Planning Clinic opened in New Delhi

A Family Planning Clinic was inaugurated in Lodi Colony, New Delhi, at 4 P.M. on February 2, 1952, by Dr. K. C. K. E. Raja, Director General of Health Services, Ministry of Health.

The Clinic will advise residents who seek its help in the "Rhythm System" of family planning, to popularise which Dr. Abraham Stone of the W. H. O. recently toured various parts of India.

The Lodi Colony has been chosen, as it is a compact area with a closed population which can be kept under observation for fairly extensive periods. The United Nations' experts in Population Studies are co-operating in the scheme and have prepared charts which will make compilation and correlation of data over extended periods scientifically accurate and easy.

The Clinic will be in the charge of one full-time Doctor and the services of two Health Visitors and two medical-social workers will be available to it. A senior Doctor who will be an honorary worker will be in over-all charge of the unit.

WHO expert group recommends that Heroin be no longer used.—The following was received in New Delhi from Geneva on 30-1-52.

To protect public health and safety an international pharmacologists group has recommended that diacetylmorphine (heroin) no longer be used for medical purposes, and should be replaced in all countries with other, less dangerous drugs. A member of the group was Sir Ram Nath Chopra, who is at present Director of Health Services in Kashmir.

The World Health Organisation's expert group on narcotics, which meets regularly to advise on problems connected with drug addiction, also examined the addictive properties of some 15 new synthetic substances, belonging to the pethidine, methadone and morphinan types, which are potent analgesics. Thirteen of these drugs should be brought under international control, the experts recommended. This, they said, should be done through machinery provided by the United Nations under various international conventions.

The recommendation on heroin was taken after the expert group learned that, on the

World Health Organisation's request, 50 countries have already discontinued or are willing to discontinue the medical use of heroin.

Governmental authorities have been greatly concerned for several years by excessive increase in heroin consumption. Large quantities are finding their way into illegal channels. Until recently, there has been widespread reluctance to suppress medical use of the drug, because of its qualities as a pain-killer and cough suppressive. Experience has shown, however, that it can now be replaced by other morphine derivatives or by new synthetic substances.

Eradication of Malaria Mosquito. Success of Internationally-assisted campaign in N. Thailand.

A result "beyond all expectations" of a malaria control project launched by the Thai Government in 1949 with assistance from the World Health Organisation and the U. N. Children's Fund (UNICEF) has been to achieve not only the complete elimination of malaria but also the eradication of the malaria carrying species of mosquito (*Anopheles minimus*) over an appreciable area of the Chiangmai district of Northern Thailand, according to a report made to WHO in New Delhi by Dr. G. Sambasivan, an Indian malariologist who was Senior Adviser to the international team.

An almost complete absence of newly-acquired malaria during what is usually the worst malaria season is also reported among a total population of 600,000 in the Northern and Central Provinces following expanded malaria control operations planned and executed in 1951 by Thai medical officers who had been trained by the WHO team.

The fourth Inter-American Cardiological Congress will be held in Buenos Aires from 31st August to 7th September 1952. Those who wish to participate in the conference should apply for registration before 1st April 1952. The membership fee is 250 dollars. Members wishing to send communications to the Congress should send before 1-4-52 together with a summary not exceeding 200 words, written in Spanish, Portuguese or English, addressed to the Administrative Secretary, Cardiological Congress, Larrea 1132.—Buenos Aires.

Penicillin Factory for India

Dr. N. L. Mac Pherson, Chief of the Antibiotic and insecticide section of WHO, an expert in the manufacture of penicillin, has favourably reported on the starting of a Penicillin Factory near Poona. The estimated cost is Rs. 2 crores; WHO will spend 18,00,000, on technical assistance for the construction of the factory, while UNIEF will provide plant and machinery to the value of 40,00,000. The Union Govt. will have full administrative and working control of the factory and its entire staff.

An Endowment for Paediatrics

"Dr. A. V. S. Sarma, Honorary Physician and Paediatrician, Government Royapettah Hospital, Madras, and his wife have endowed Rs. 5000 to the Andhra University as 'Dr. A. V. S. Sarma and Srimathi Lalithamba Endowment Lectureship' for the promotion of Paediatrics".

"Dr. A. V. S. Sarma has further endowed a sum of Rs. 500 for a prize in Paediatrics in the Stanley Medical College, Madras, in the name of his parents—'Akkaraju Seetharamiah Ramamma Garu prize for Paediatrics'."

[We congratulate the Donors on their generosity.—Eds.]

World Health Congress in Britain

A paper on "Malaria and its control in India" by Colonel Jaswant Singh, Director of the Malaria Institute of India, Delhi, is among the many due to be read at a three-day Health Congress being held at Margate (Kent) in April 1952.

More than 2,500 experts from all over the world are expected to attend the Conference, which has been organised by the Royal Sanitary Institute. It is supported by the Governments of many countries and the delegates will include officials of Government Medical Services and representatives from Universities and health associations. Lord Moran, a former President of the Royal College of Physicians, will preside over the Congress which opens on April 25th 1952.

Colonel Jaswant Singh's paper will be read in the Tropical Hygiene Section of the Conference. Among the many other subjects to be discussed are food and nutrition, maternity and child welfare, hygiene in industry, and housing and planning.—L. P. S.

Commonwealth Health and T. B. Conference

India is among the countries whose specialists have been invited to attend this year's Commonwealth Health and Tuberculosis Conference which opens in London on July 8, 1952.

The Conference, organised by the National Association for the Prevention of Tuberculosis, is open also to specialists from non-Commonwealth countries. Representatives of 52 countries attended the last conference in 1949.

The Conference will afford an opportunity for those interested in anti-tuberculosis work and other problems of preventive medicine to meet fellow workers in these fields and to visit hospitals, clinics and sanatoria in Britain. An extensive display of X-ray apparatus, medical equipment, pharmaceutical products, patients' handicrafts, and medical and technical publications will be on view during the conference. Other items on the agenda include tours of general interest and film demonstrations.—*London Press Service.*

Radio-active isotopes:—Manufacture in India

Because of the ever increasing usefulness of isotopes, their production at Harwell in England, is mounting up. The total production in 1951 was about 7500 parcels, and 2000 of them were sent overseas. These included parcels for use in medical, veterinary and agricultural science; these parcels were small on the whole as the material is active for only a short time. The needs of industry are better served by isotopes with a longer life. The great medicinal value of isotopes tends to overshadow their industrial importance.

Dr. J. H. Bhaba, Director of the Tata Institute of Fundamental Research inaugurating the Indian Radiological Congress on 8th February 1952 at Bombay announced that a high-powered neutron-generating unit will shortly be established at that Institute, for the manufacture of radio-active isotopes for distribution throughout India, for radio-therapy and research. The institute was devoting serious attention to the protection of the staff doing research in radiology, from the ill-effects resulting from constant exposure to the radiation from radio-active waves.



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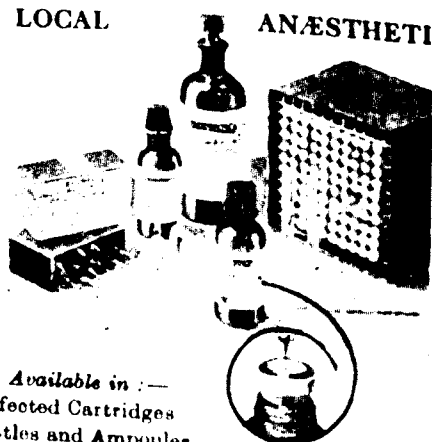
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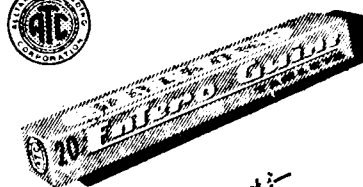
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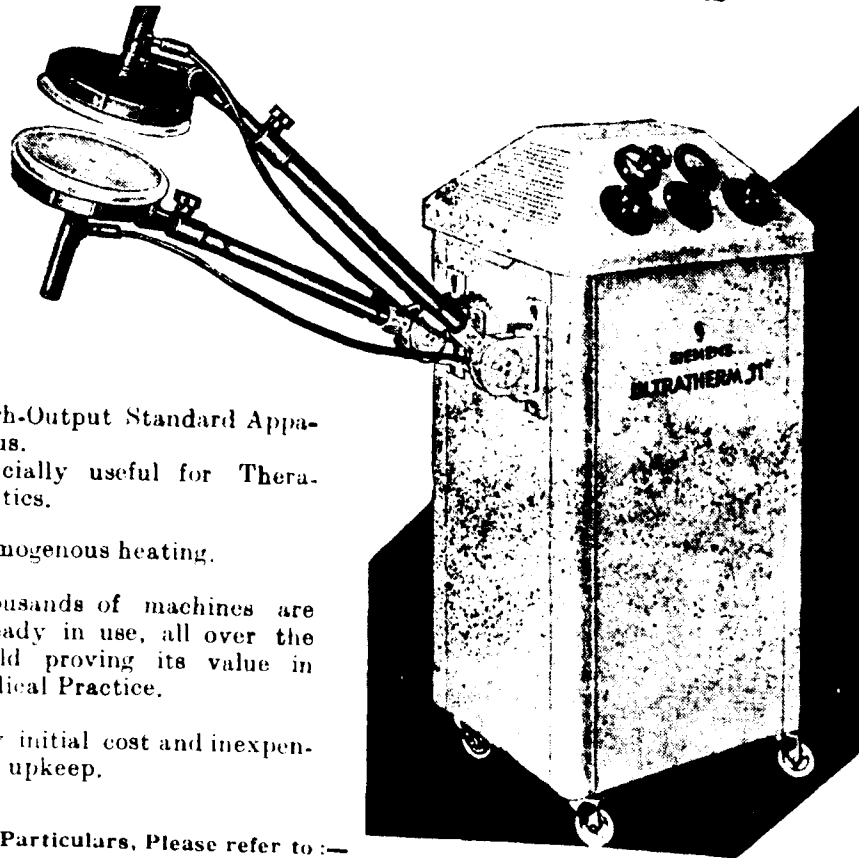
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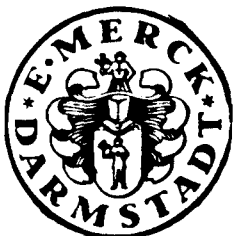
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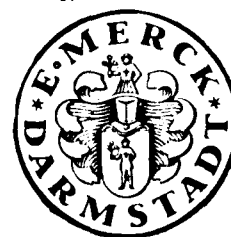
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Gram: 'DRUGHOUSE'

The CONTINENTAL DRUG STORES

115, Princess Street, BOMBAY-2.

Wholesale & Retail
Chemists, Druggists &
Direct Importers
FEBRUARY 1952

TERMS: Payment by V.P.P. or thru' Bank Delivery Ex-godown, 25% advance from NEW CLIENTS.
Items not listed here will be supplied at market rate. Sales-Tax where applicable extra.

Aureomycin 8 Cap.	19-0	Tablets: 100	500	1000	All Glass Syringe CN (SN 1/- Extra)
Chloromycetin 12 Cap.	25-12	Mepacrine	—	—	Ger. 2 5 10 20 30cc.
Terramycin 8 cap. 18-0	16's 35-0	Quinacrine 1000	10-12	5000	53-0
Dihydro-Strepto 1 gm P.D. 3-5		M&B 500 7-4	1000	13-4	USA Jap. 0-12 1-3 1-11 2-12 5-0
" Pfizer Merck Hedyn		Ephedrine 1gr. Ind	1-8	7-0	9-8
" 3-2 3-1 2-14		" Agr. Eng. "	2-0	8-8	13-0
Combiotic (Pen & Strp) Pfzr.	6-8	Aspirin BDH	1-3	—	5-8
*Penicillin G crys		Calcium Lactas E	1-0	—	5-4
" 2 5 10 Lac. Units.		Proflavine			4-8
" 1-0 1-8 2-12 Pfizer		Saccharin Boot	0-10; 1-14; Ind	2-8	Leur Lock Syringes
" 0-13 1-6 2-9 Merck		Yeast Tab Eng	1-8	7-0	Jap. 2-6 3-6 4-8 7-0 11-8 SN
" cum Proc: Germ Merck Pfizer		Soda Mint	0-11 BDH	2-4	B.D. 7-4 11-0 13-0 16-0 22-0 SN
" 4 lac. 2-2 2-12 2-12		Paludrine 1 gm 1000		29-0	Needles Jap. Germ. Eng. Down
* For out of BOMBAY State		" 0-3 gm. 500 25-14; 496		27-4	Record 2-4 2-4 3-12 4-12
Penicillin Skin Oint 1-0 Eye 0-11		Cal. Glu. 10% 10cc. 100 Amp.	16-0	16-0	Down No. 14 & 16 5-0 [tum 5-8
" Lozeng. 2000 unit. 1-2; Glaxo		" 100x10cc. (12x10cc. 1-8)	8-4		BD No. 20 to 24x1" 9-8; Perfect-
" Tab. 2 lac. 9-6; 1 lac. 4-12 lac		Emetine 1 gr. Amp. 100 BDH	56-0		Jap. on Glass Mount doz. 2-12
" 100 G. 5-8 10-0 12-0 14-0		" 1 gr. "	95-0		Bed Pan s. 5-8; m. 6-8; lg. 7-8
" 250. 12-0 23-0 — 35-0		" 4x6 USA 2-4 BDH 4-0 12 A	7-8		Thermometer Germ. 1-4; Jap. 0-14
" 100 Tab. 4-2 8-2 7-0 —		" Calcit Osteolin 15 cc.		3-4	" Eng. 1-10; Zeal 2-1; USA 1-8
" 250. 10-12 Italy 500 19-0		Berin 10 cc. x 100mg. 6-4 50mg. 4-0		4-0	Lactom ter Ind. 0-14; Ger. 1-6
Sulpha Tab 500 1000		Vitamin B 10 cc. x 100mg. 3-12		4-12	Douche com. E.I. 2, 3, & 4 pt 3-12
" Diazine M&B 52-0 USA 78-0		Macrabin 6x1cc. 20 mic 4-12		7-0	BD Stethoscope 21-0; Germ. 10-0
" AFD & BDH 48-0		" (5 cc. 5-4); 50 mic. 7-0			" Type perfectum USA 16-8
" guinidine Boot 17-0 Eng. 32-0		Neosalversan 0 15gm. 30 45 60			Plastic Tubing 2-0; Rubber 0-14 Yd.
" " Eng. 16-12		" (75gm 2 30 1-12 2-6 2-10 3-2			Erkame'er 67-0; Art. Forcep 2-0
" nilamide Astat 5-4 Gl. 14-12		Cystopurin Tab. 1-3			Weighing Machine Detecto 40-0
" M&B 6-8		Carbentren 20 Tab. 1-13			Silk w. gut 1-8 box; Catgut 0-14
" thiazole Boot. 23-4 USA 39-0		Coramine Liqd. 3-10 Amp. 5-2-12			Saline apparatus 300 cc. 8-8
" Squibb 44-0		Trasentin Tab. 30 2-12			Catheter Ind. 0-11; Italy 0-16
" mezaithine 10 100 6-12; 500 39-8		Esidrone Amp. 5-4 Plastules 2-6			Cont. flow syringe 12-8 Ideal
Sulphatriad MB 9-0 44-0		Cylotropin I.V. 4-12; box of 5			Saline needle 2-0 Serum needle 2" 1-4
Sulphetron Tab 10-0 43-8		Atophan Pow. Schering oz. 6-12			A.P. Needle Eng. 14-8; Ind. 6-0
Cibazol Tab 250 15-8 20's 1-12		Head Mirror 5 cloth band E 11-0			First Aid box for 25 12-8
" Amp. 4-0; Oint. 2-7; Pow. 2-4		M&B Milk of Magnesia 1-6			" " " 50 28-0
M&B 760 500 32-0; 25 1-14		" Paraffin 2-5 lb. L.P. Gall. 10-8			A. cotton 2-4 lb.; Lint 4-8 lb.
" 693 42-0; 2-4		Quinine Sulph. Ind. lb. 46-8			A. Gauze 18 yd. x 25" 5-12
Liver Ext. 10cc. 2 8; 100 At 2cc 40-0		" Java 50 8; Howd 52-8; oz. 4-4			" " " 6 yd. 5-8 doz.
" 10cc. 2 5 USP 4-0		" Bihyd. oz. 7-0; Hydro. 6-8			Bandages 6 yd. x 3" Brown 3-0
" 4-0 8-0 — P.D.		Cinchona Feb. Java lb. 27-0			" 6 yd. x 1" to 6" 1-2 inch
6 USP 20cc. 8-4 4-6 Oxid Eng.		Euquinine Java 4-4; Roche 4-8			Cocaine Oph. H.T. 20x 1/20 gr. 1-0
Liver & Vit. B Comp 10cc. 4-8		" Holland oz. 4-2; dr. 1-4			Emetine pow. JJ 15 gr. 7-0
Campolon 2 x 5 cc 5-9		Q. Bihyd Amp. 100 x 10 gr 2 cc.			Cod Liver with Malt lb. 3-4
Atebrin Tab. 15-13; 300 9-4		Ind. Evans BQH. BW. PD.			Magcarb. Pond. 1-6; Lewis 2-4
Entodon A 10 x 2 cc. 8-0		18-8 25-8 26-8 31-8 47-0			Hydrogen Maclean 4 oz. 12-0
Acetylarsan 10x2cc. 4-8 3cc. 6-0		" 12-8 — 19-8 100x5 gr. 1cc.			" USA. 1-10; Ind. 1-8 lb.
Gardenal oz. 4-4		Vitamin B12 30 mic/5cc. 4-4			Alludrox dr. 3-12; Ner Vigor 3-4
Neptal 6x1cc. 2-7 6 x 2 cc. 3-8		" 50 " 5-0 10cc9-8			Bandages 6 yd. 2 1/2" doz. 3-8
N.A.B. 0-15 30 45 60 75 90		Redoxon 6x2 cc. 5-0; 50 Amp. 39-0			" cloth 20 yd. x 38/40" 20-0
1-1 1-5 1-8 1-11 1-12 2-3		" 3x5cc 4-7; 25 A. 30-0 20 tab 1-9			Sterilizer 6" 12-8
Soluthazole 6 x 5cc 4-0 MB		Sodobrol Tab. 30 6-0; 10 2-4			Dra. Scissors 1-8; Pol. Iodide 16-0
Thalazole Tab. 25 3-4; 500 55-8		Acid Boric 0-14; Aspirin 5-0 lb.			Chloroform & Anesth. lb. 3-8
Antiturin S 17-8; Synap idin		" Tannic lb. 7-4; 2 lb. Tin. 12-0			Camphor cake 5-4 lb.
Benadryl Cap. 5-8 [17-8		Aeriflavine 25gm. 5-0; 5gm 1-4			Q. Amp. 12x10 gr. 2cc. Ind. 3-8
PD. Emetine A. 1 gr 11-0; I. 6-4		Argyrol 13-4; E. Protorgol 36-0			Sulphur Precipitated 2-12 lb.
" Elx. Ephedrine Co. 4 oz. 2-8		Ammon Salph. BDH 2-8			Folic Acid Tab. 5-0; 10 cc. 6-12
Haliviol 5cc. 2-9 Ferradol US 7-4		Ethyl Chl. 100 cc. USA 3-2 dz. 36-0			Vitamin B Complex 10 cc. 5-0
Livibron 6-4; Metatone lg. 6-2		Camphorodyne MB. 3-12 lb.			Plastule Liver 3-5; Folic 6-0
Adrenalin in Oil 6 x 1 cc. 3-6		Ext. Ergate. Id. 25-0 Calomel 8-4 lb.			Lactopeptin Tab. & Pow. 4-0
Pituitrin 6 x 1 cc. 11-4 4cc. 8-4		Pot. Bicarb. 1-9 Pot. Citrs 3-8 "			Ephazone Tab. 15 2-8; 45 6-0
Abdee 6-4; Combex 10 cc. 6-13		" Bromide 3-8; Soda Iodide 16-0 "			Cal. Hypo. 5-8 lb.; Ext. Bella-
Calcium Sandoz 100 gm. 5-0		Sed. Salycyl. 5-0; Sed. Biphos. 1-12			Wyamin 50 cap. 6-4 [donna 15-0
Argyrol M&B. oz. 4-0		Santonine M&B 13-0 dr.			Hot Water bag 3-12; Ice bag 2-4

HYPERPIESIA (High Blood Pressure)

R. Tablet **ARJIN**

Composition: Arjuna, Trifala, Shilajit, Punarnava..

Special features of ARJIN treatment:

- * Arjun, Trifala, Shilajit...the ingredients of ARJIN while rectifying the various factors in the etiology of H.B.P., especially correct the impaired Cardiac, Hepatic and Renal parenchyma.
- * ARJIN tones the Cardiac and vascular systems rather than depressing them.
- * ARJIN is thus very safe and suitable even for *Prolonged* treatment.

CASE REPORTS

THREE H.B.P. CASES:

Care of Dr. M.B.B.S., D.P.H. (Lond.)

Male of 50 years—sharebroker—giddiness and heavy breathing after short walk and little work—feels tired and no inclination for food ordinary treatment has failed to benefit him—fatty and heavy body—no arterio-sclerosis—no v.d. report—heart normal—lungs normal—liver slight plus—slight dilatation of arteries of temples urine examinations, albumen and sugar nil—Pot. Iodide and Sodi Nitrates treatment gave temporary benefit results.

Tried ARJIN in suitable doses—the B.P. fell from 175/120 to 160/110 in a week—continuation of the treatment for a month—it steadied to 140/100—after six months it is maintained at 135/82 mm.Hg.—patient likes to continue the tablets now in small doses.

Two similar cases of B.P. (High) also benefited by ARJIN treatment.

Packings: 30, 100, 500 tablets available at local chemists or directly from us.

Literatures from:—

ALARSIN PHARMACEUTICALS (INDIA)

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in conception control

Ortho-Gynol

is effective and reliable

by Huhner test and clinical studies; instantly spermicidal.

acceptable —A harmless contraceptive jelly,

water miscible, non-irritating and non-staining,

aesthetically acceptable.

stable in any climatic extremes.

Ortho-Creme

Similarly effective, but allows the prerogative of choice

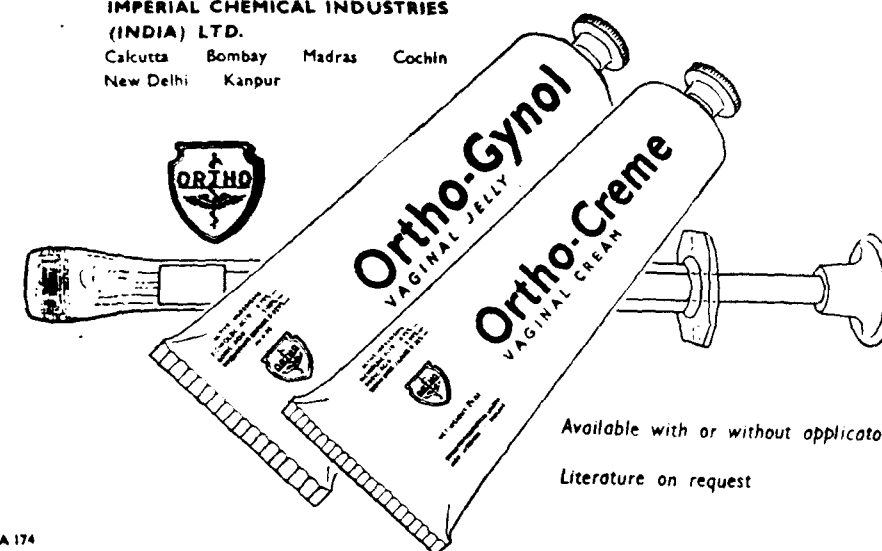
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fine cosmetic cream.

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New Delhi Kanpur



Available with or without applicator.

Literature on request

IX-A 174

ELASMIN PEARLS

Freely prescribed by leading physicians, this Shark Liver Oil product is recognized invaluable both as a prophylactic and curative against disorders resulting from deficiency of vitamin 'A'. Absolute freedom from the objectionable taste and odour characteristic of Shark Liver Oil is a special feature of this product. Each pearl contains 3,000 I. Us. of vitamin 'A' in its natural ester form and 300 I.Us. of vitamin 'D'.

INDICATIONS

General Debility, Pregnancy and Lactation. Rickets. Eye diseases. Diseases of the respiratory passage, such as coughs, cold, asthma and tuberculosis.

Sold in Bottles Containing 50 and 1000 Pearls

Elasmin is also available in liquid form in 1 oz. "ELASMIN LIQUID" bottles.

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Department of Fisheries, Government of Bombay,
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M s. SAMSOL PRODUCTS CORPORATION
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Injection Treatment

WITH

LIQ. SICCAN'S

By the makers of

SINDOL

(ANALGESIC)

ASEPTICUS COMPANY

(Estd. 1925)

G.P.O. 560, BOMBAY-1 (A)

Announcing

STABLE SOLUTION OF

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THE LOWEST PRICED "ACTH"
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All claims made for ACTH Solution (Wilson) have been approved by the Council on Pharmacy and Chemistry of the American Medical Association.

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T'grams: "PINDREAM"

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For
ALL TYPES OF
ANÆMIA

Hepaplex

WHOLE LIVER EXTRACT
FORTIFIED WITH VITAMIN
B-COMPLEX, C & FOLIC ACID.

Each ampoule of 2cc represents -

HEMOPOIETIC PRINCIPLES FROM 50 gm. of FRESH SHEEP LIVER AND -	
VITAMIN B ₁	50 mg.
VITAMIN B ₂	5 mg.
VITAMIN B ₆	5 mg.
VITAMIN C	100 mg.
NICOTINIC ACID AMIDE	50 mg.
CALCIUM PANTOTHENATE	15 mg.
FOLIC ACID	5 mg.
VITAMIN B ₁₂	2 mcg.

PACKINGS:
BOXES OF 3, 6, 25 and 50
AMPOULES OF 2cc. & 1 cc. each
ALSO IN 10 c.c. R.C. VIALS.

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ATROPIA SULPH. 1 ounce Rs. 36-0
AMPHETAMINE SULPHATE Tablet (Eng).
500-5 Mgr. Rs. 4-0 per bottle.
BARBITAL Sodium Tablet (U.S.A.)
5 gr x 1000 Rs. 8-0 per bottle.
QUININE SULPH. (JAVA) Packing 6½ lb.
Tin Rs. 45-0 per lb.
PROFLAVIN SULPHATE Powder 1 ounce Rs. 2-8
BARBITAL SODIUM POWDER 1 ounce Rs. 1-12
XYLOL Rs. 3 0 per lb.
ABSORBENT GAUZE „ 4-12 „
BANDAGES WHITE „ 1-0 per inch

Prices are Nett. Ex-Godown and for
other items write to:

SHROFF BROS. & SONS,
Wasamal Building, Grant Road,
C Block, BOMBAY-7.

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U.S.A. 20-8 ea. Ind. Sup. 12-0 ea.

All Glass Syringe German Make

2 5 10 CN 10 20 30 50 S.N.
1-4 1-12 2-8 3-8 4-2 7-12 9-8 ea.

Record Syringe 'Henki' German Make

2 5 10 CN 10 20 30 50 SN
4-0 6-0 7-2 8-4 11-4 13-8 23-8 ea.
7-0 8-14 11-2 12-0 complete in case ea.

Needles

(R.M.) D.B. 4-8; Ger. 2-0; Japan 1-14
Luer B.D. 10-4 Perfectum 5-4 doz.

Thermometer

Zeal 2-13; Ger. 1-4; Japan 1-0; ea

Curity Adhesive Plaster

1" x 5 yd. 15-0; 2" x 5 yd. 20-0 doz.

Streptomycin

'Pfizer' 3-2; 'Merck' 3-1 ea.

Eue Quinine Java 4-4; Roche 4-8 oz.

'Durex' F.L. 1-10; Feather Tex USA 2-0 doz.

Eargoeol Capsules 9-0 each.

P.D. Chloromycetin 26-0 per bottle.

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BOMBAY-2

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"THE ANTISEPTIC"

A MONTHLY MEDICAL JOURNAL

Fond. 1904

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Aureomycin 8 18-12; Terramycin 8 17-12; 16 34-8
Chloromycetin Caps. 12 P.D. 25-12
Streptomycin Pfizer 3-4; Merck 3-2; Cheap 2-14
Penicillin Sodium 1 2 5 10
Pfizer 0-13 0-15 1-7 2-12
Merck 0-12 0-13 1-6 2-10
Procaine Penicillin Aqueous 4 lac. 2-0
Pfizer 2-11; Merck 2-8; Eng. Eng. 1-9
Procaine 3 lac. Pfizer 2-10; Ap. 13-4
Penicillin Eye Oint. 8-4; Skin 2-0
Penicillin Lozenges 20 1-0; 50
Quinine Bihi. Amps. 10x10 gr x 2 cc. Ind 18-0
Evans 24-12; B.D.H. 27-0; B.W. 31-8; P.D. 47-0
12x10 gr x 2 cc. Ind 3-4; B.D.H. 3-12; 6 gr 2-0 Ind
Quinine Sulph. Java 1b. 51-0; oz. 4-0; How. 4-8
Govt. lb. 47-0; oz. 3-12
Quinine Sulph Tabs: 100 x 2 gr 2-14; 5 gr 5-2
Bihydrochlore Tabs: 100 x 2 gr 3-14; 5 gr 7-2
Euquinine Oz.: Java 4-4; Roche 4-8
P.A.S.: Italy 100 gm 5-0; 100 Tabs 3-15; 250 9-14
P.A.S.: Bayer 120 gm 13-0; 100 Tabs 6-4; 250 14-6
Liver Ext. 10 cc. 2 USP: P.D. 3-14; Lilly 5-14
10 cc. x 5 USP: P.D. 8-2; Eng. 4-4
Emetine Hydrochl: B.W. 12x1 gr or 6x1 gr 9-12
P.D. 6x1 gr 6-14; 1 gr 11-0
Endo USA 6x1 gr 2-2
Vitamin B12 20 mic. x 6 x 1 cc. 4-0; 10 cc. 6-0
B12 50 mic. 6x1 cc. 6-14; 1 cc. 6-0; 10 cc. 9-10
B.I.: B.W. Emetine Hydro. 12x1 gr 5-4; Eng. 4-0
B.I.: Atropin Sulph 0-8; Hyosine HBR 1-0
B.I.: Ergometrin B.W. 12 Tabs 7-8
A.P.C. Tabs. 100 2-8; Calomel 100 1 gr 1-0

Please Register your name for our Monthly Price list

Free for Orders Above Rs. 100

Atebrin USA 100 1-4; Dovers Powder Tabs 100 3-4
Paludrine 1gm 100 3-6; 1000 28-8
3gm 100 5-8; 500 25-12
Distilled Water 50 x 5 cc. 3-0; 10 cc. 4-0
Normal Saline 50 x 5 cc. 4-8; 10 cc. 6-4
Adrenoephedrin 12x1 cc. 2-12; Camphor in oil 0-12
M&B Sulphanilamide 500 6-4; Sulphatriad 9-0
M&B Sulphadiazine 100 11-0; 500 49-0
CIBAZOL 250 15-8; Sulphamezathine 100 6-12
Eng. Sulphaguinidine 500 16-8; 1000 32-8
Sulphadiazine 100 10-0; 500 43-0
Bayer Resochin 10 1-13; 100 14-6
Atebrin 15 0-12; 300 8-14
Campolan 5 x 2 cc. 5-12; 25 x 2 cc. 26-4
Cibazol Amps. 5 x 5 cc. 3-14; 20 x 5 cc. 14-14
Coramine Amps 5 x 2 cc. 2-10; 20 x 2 cc. 9-12
Enterovioform 20 2-12; 100 11-4
Crookes Col. Cal. e Vit. D 15 cc. 3 14; 30 cc. 7-6
Enteroquinol 100 9-14; Irgaparin 5x5 cc. 8-8
Berin 10cc.x25 mg. 2-6; 50mg. 4-0; 100mg. 6-4
Calcioctel 15 cc. 3-4; Celin Tab. 100 3-12
Salyrgan 5 x 1 cc. 4-2; 5 x 2 cc. 5-0
Acetylsalicyl 10 x 2 cc. 4-8; 10 x 3 cc. 5-14
Gardinal 100 x 1 gr 2-4; 1 gr 2-12; Sod. 1gr 2-12
Vibex 50 mg x 5 cc. 3-2; 100 mg x 5 cc. 5-2
Redoxon 6x2cc. 5-0; 3 x 5 cc. 4-6; 100 Tabs 6-6
Benerwa 6x1cc. 4-2; 500mg.x5cc. 3-14; 20 tabs 2-2
Saridon Tabs 10 1-7; Atophan Tabs 20 2-10
AG Syringe Japan 2cc. 0-12; 5cc. 1-4; 10cc. 1-10
Record Syringe 2 cc. 3-2; 5 cc. 5-12; 10 cc. 6-8
Thermometer: Hicks 4-8; Zeal 2-10; German 1-4
Japan 0-14; Eng. 1-10

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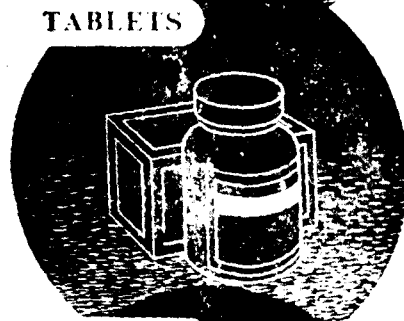
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Chloromycetin 12 25-12; Terramycin 8 18-2
Quinine Bengal 47-12; Java 51-0; Howds 52-8
Stand. lb. 42-0; Howds oz. 4-4; Bihydro 8-8
Quinine Bihydro Amps. 100 x 10 grs. x 2cc.
Ind. Alb. B.D.H. Evans B.W. P.D.
18-8 25-0 26-0 25-0 31-8 47-0
100 x 5 gra x 1 cc. Ind. 14-0 BDH. 19-0
Pamaquinine Tab. 300 1-2 [64 gr. BI. 14-0
Qu. Amp. Italy 15grs. x 5x2cc. 1-2; Amp. 100. 20-0
tab. 2 gra x 100 3-0; 5 gra x 100 B.W. 6-0
5 gr x 1000 BDH 40-0; Howds 1400 47-8
Bisulphate 5 gr. x 500 Java 20-0; 100 5-0
Bihydro 2gr x 100 4-4; 5 gr. 7-8
Eac Quinine Java 4-6; Roche 4-8; Holland 4-6 dr. 1-4
P.A.S. 100grms. Italy Bayer Dumex Herts
5-4 12-8 14-4 12-12
100 Tabs. 4-2 8-8 11-10
250 10-12; 500 20-0 Italy
Q. Bihyd H.I. B.D.H. 10x5 gr. 1-4; B.W. 12 2-2
Atebrine Bayer 15 9-12 dz. 300 9-0; Bat. 1000 19-0
Amps. 3 grm. x 2 2-8; 25 amps. 21-0
Mepacrine ICI 1000 12-12; Eng. 1000 10-12
Quinacrine MB 500 7-0; 1000 13-8; USA 10-12
25 x 3 grm. 26-0; Nicotinic Acid 500 4-4
Paludrin 3 grms. x 500 26-0; 1000 x 1grm 28-8
amps. 25 11-4; 5 amps. 3-4 [G.L. 6-
Glaxo Vitamin B₂ 20 mic. x 6 x 1 c.c. 4-4
50 mic. 5 c.c. 5-4; 6 x 1 c.c. 7-8
M&B 693 500 41-0; 760 500 36-8
N.A.B. 15 0-11; 3 0-12; 45 0-14; 6 1-0
Acetelarsol Adult 6-8; Child 4-12; Nedtal 6 x
B.W. Salpetrose 100 10-4; 500 4-4 [1cc. 2-8; 2cc. 3-8
Solusepticin amps. 25 x 5 cc. x 20% 20-0
Stovarsol tab. 500 40-0 Leucorson 500 20-0
Sulphanilamide tab. Eng. 1000 11-0; 5 gr. 7-0
MB 500 6-8; Glaxo 1000 15-0; Paw. lb. 10-8
Sulphaguanadine Eng. or Aust. 1000 32-8
500 Boots 17-0; M.B. 23-0; ICI 17-8
Saphadiazine Eng. 1000 78-0; 500 AFD or BDH 46-0
ICI Sulphamezathine 500 31-0; 100 7-0 [MB 49-8
Sulphathiazole Boots 500 23-8; Merck 1000 39-8
Sulphanilamide Cream 4 oz. Lilly 5-0 doz.
Gentian Violet Jelly Lilly 4 oz. 4-8 doz.
Emetin Hydr. B.W. 1 gr. x 12 10-4; 1 gr. x 6 9-12
Endo 6 x 1 gr. 2-4 B.W. 1 gr. x 100 65-0
P.D. 1 gr x 6 7-8 1 gr x 6 amp. 11-0
Emetin Hydr. Eng. 1 gr. x 12 8-0; 1gr. x 12 13-8
Calci Ostelia 15 c.c. 3-4; [1 gr. x 25 B.D.H. 14-8
Merck or Whifens Emetine tab. H.I. 1gr. x 12,
[1 gr. x 6 4-4
Cibazol tab. 250, 15-8; Enterovioform 100 11-4
Berin 25 mg. x 10 c.c. 2-8; 50 mg. 4-0 100mg. 6-4
P.D. Adrenaline in Oil Amp. 6 3-8; Astiterins 17-12
P.D. Antiturin 8. 18-0; Combex 10 c.c. 7-2
Liver 2 USP. 4-4 5 USP. 8-4 Eng 5 USP. 4 8
Gadusaa 2 cc. 12-8; Campolan 5 x 2 cc. 6-0
B.W. Cal. Gluconate 10% x 10 c.c. x 100 45-0
Sandoz, 10% 10cc. x 100 100-0; 5 amp. 6-8
10% 5cc. 10 10-12; 10cc. x 20 Amp. 22-4
Argyrol orig. 4-0; Eng. 4-12; Protargol 4-4
Redoxen 6x2cc. 5-2; 3x5cc. 4-6; 20x5cc. 33-0
Vit. B₂ Roche (Beflavin) 50 x 10 mg. 20-0 box
Saridies tab. 10 17-8; 250 35-8 Redoxen 50x2cc. 40-0
Ergoapiol 13-8; Martinapiol pill 7-8
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Neosalvarason 15 1-12 3 2-6 45 2-11 6 3-2
Omnopon Amps. with Needles Comp. Tab. 1-0
B.W. Morphia Sulphate cum. Atropin 20x1gr. 5-0
P.D. 20x1 gr. 3-8; Ind. 2-8
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Chinifosonum Eng. (Yatrin POW.) 500 grms. 15-0
Aminophyllin Tab. B.W. 25 2-0; 100 6-0
Amps. 6 x 2 cc. 5-2; 6 x 10 cc. 6-0
Waterbury's Co. 5-0; Aletaris 14-8; Cordial Rio
Distil Water 100 x 5 cc. 6-0; 10 cc. 8-0; 2cc. 5-8
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Ephedrine Hydro 1 gr. 1000's Ind. 8-8; USA 14-0
Yeast Tab. BDH 1000 7-8; Eng. 7-4; Thymol oz. 4-0
Soda Salicylas 6-4 lb.; Surgeon's Apron 10-8
B.W. Pituitary 1 c.c. x 6 amps. 4-4; 1 c.c. 6-4
Santonine dr. 11-12; Ext. Ergot Lqd. Ind. B.P.
Bandages Eng. 5" x 6 yad. 3-4 oz. 1lb. 28-8
Digoxin tab. 25 2-0; 100 5-0; 500 17-8
Phenobarbiton Tab. B.D.H. 1000 x 1 gr. 14-0
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Belladonna Plaster Eng. 5-4 JJ. doz. 7-4 [13-8
Potas Chlorus Powd. lb. 4-0; Tab. Eng. 500 6-0
Woodward Gripe Water dz. 27-0; B.P. 16-8 doz
Stethoscope Pouch Plastic 3-8; 5 Clip. 6-8
Hypo. Syringe (S.N.)
All Glass Japan 2 5 10 20 30 50cc.
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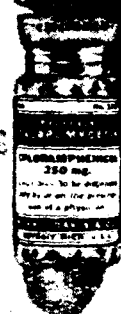
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