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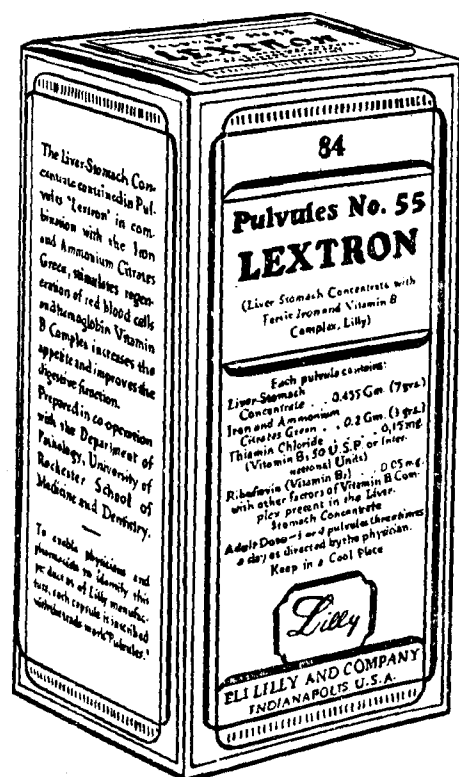
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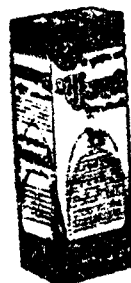
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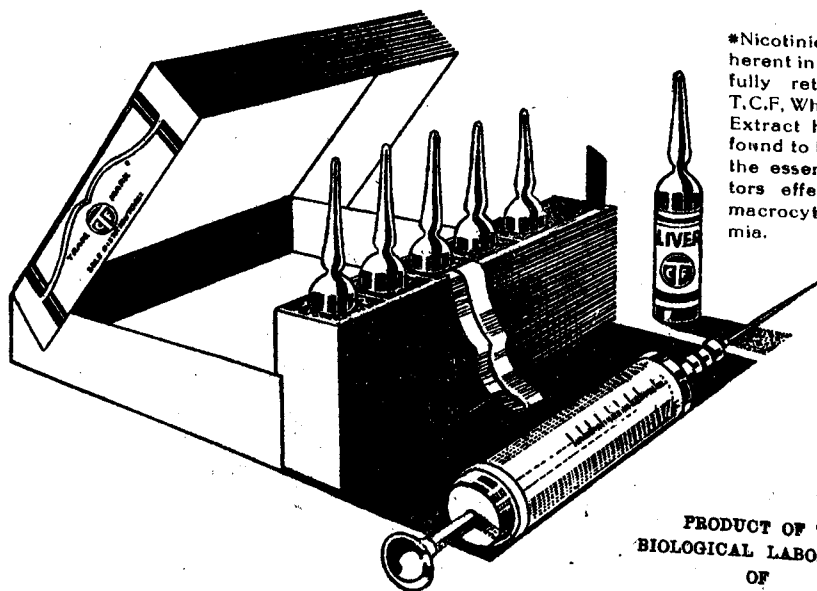
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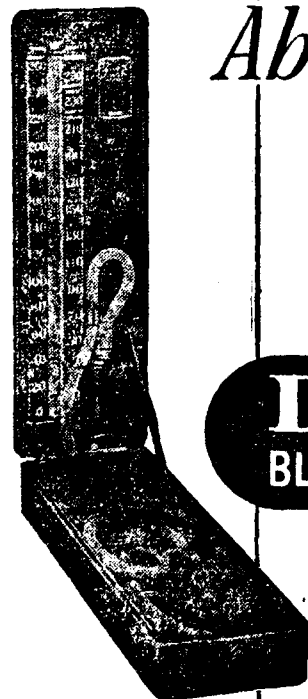
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Veganin may well be used to soothe the overwrought nerves, relieve pain and induce sleep. It is a synergistic combination of acetylsalicylic acid, phenacetin and codeine, and is widely known as a dependable and highly effective analgesic, sedative and antipyretic. Veganin is neither toxic nor habit forming.



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The building up of the system after illness, especially when anaemia and emaciation are present is definitely aided by the tonic — reconstructive action of Waterbury's Compound. This preparation presents products obtained by the enzymatic action of pancreatic ferments on cod liver oil, livers and spleens, malt extract and hypophosphites in a palatable form suited to the most fastidious palate. Waterbury's Compound improves the appetite and strengthens the digestive functions.

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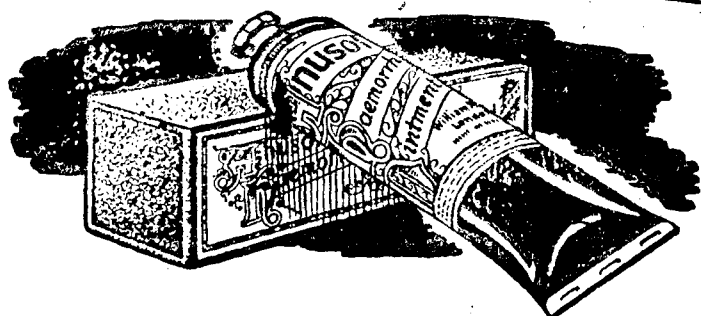
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No narcotic, analgesic or local anaesthetic drugs enter into the composition of Anusol Haemorrhoidal Ointment, so that it may safely be prescribed for patients of all ages without fear of rectal absorption of any toxic substance. Anusol Ointment contains mildly astringent medicaments in an emollient base. It relieves rectal congestion, allays irritation, and soothes inflamed tissues.

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TRADE MARK **CASYLOTROPIN** BRAND

(Salicyl, Hexamine, Caffeine preparation)

Ampoules of 5 c.cm. for Intravenous or Intramuscular Injection.

Composition & Chemical Formula:—

Each Ampoule of 5 c.c. contains:—

Hexamine	2.0 Gm.
Sodii Salicylate	0.8 "
Caffeine Sodii Salicylate	0.2 "
Aqua Bi-Distil (Sterile) to	5.0 "

INDICATION:

1. Infectious Inflammation of Urinary Passages.

E.g., Cystitis, Pyelitis, Pyonephrosis etc.

CASYLOTROPIN is specially efficacious in Chronic Cystitis set up by Prostatic Hypertrophy and accompanied by alkalascence. It is also used with success as a Prophylactic to prevent Cystitis after Prostatectomy.

One Ampoule of 5 c.cm. is injected every other day until urine remains permanently clear with acid reaction.

2. Infectious Inflammation of Bile Passages.

E.g. Chole-Cystitis.

One Ampoule of c.cm. is initially injected daily when symptoms decrease, 5 c.cm. is used every other day.

3. Rheumatic Affections.

CASYLOTROPIN lessens the Swelling, leads to a rapid cessation of Pain diminishes the liability to Pericarditis and other complications of rheumatic cases.

One Ampoule of 5 c.cm. is injected twice a week or once a week according to the severity of the case.

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When Casylotropin is injected, the Hexamine is possibly split up in the system into Formaldehyde and Sodium Salicylate into Salicylic Acid. These split-up products act as formidable enemies to the causative pathogenic germs or bacteria responsible for the indicated diseases. The Caffeine moiety of Casylotropin keeps up the Heart and act as a mild diuretic.

Clinical Results: Since the introduction of Casylotropin by the Medical Research Laboratory in the year 1934 extensive trial has been given by quite a large number of qualified Medical men in Bombay, Punjab, Delhi and in Bengal with uniformly successful results in Varieties of complications indicated above. In cases of Chole-Cystitis Casylotropin is said to have acted like a magical cure.

About 75% swelling of knee-joint and the acute agonising pain of the Rheumatic patients are said to have been removed by one or two doses administered intravenously by the Medical Officers of District Hospitals in Bengal. One course of 6 injections on an average, cured the patients permanently.

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For Malaria and Anæmia
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Each 2 c.c. ampoule of Ferarchin contains:

Readily Soluble Organic Comp. of Iron	gr. 1 (0.0648 gm.)
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Organic Salt of Arsenic (equivalent to Arsenious Acid)	gr. 1/100 (0.00065 gm.)
Urethane q. s.	

Aqua (Bi-Distil and Sterilised) to 2 c.c.

Use:—Ferarchin is to be used in (i) acute & Chronic stages of Malaria including Malignant type with enlarged liver and spleen.

(ii) In anæmia arising out of repeated attacks of Malaria.

(iii) Ague and all other fevers with the exception of kala-azar.

Therapeutics:—It has been established by clinical tests that:—

(a) Ferarchin stops malarial fever even in cases where oral administration and injections of quinine bi-hydrochlor fail.

(b) Acts directly upon Liver and spleen to cause their abnormality to sink and even a most indolent liver is made to resume its normal function.

(c) Removes anæmia, increases red blood corpuscles, and causes a fresh supply of normal blood in the system.

(d) Stimulates in short, the whole system—a completely broken down system of malarial patients being reorganised.

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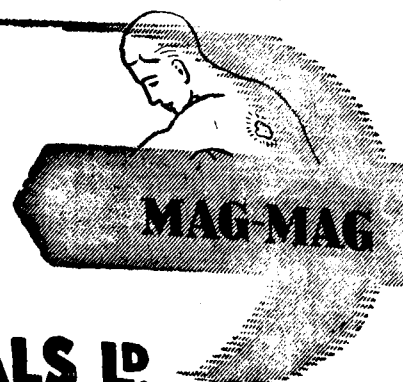
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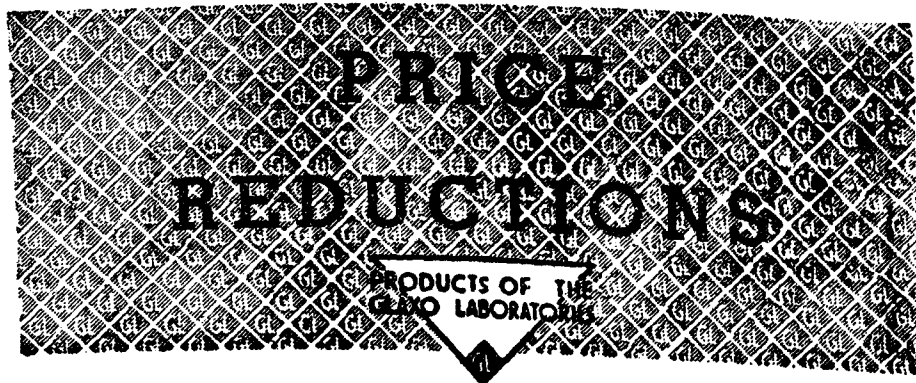


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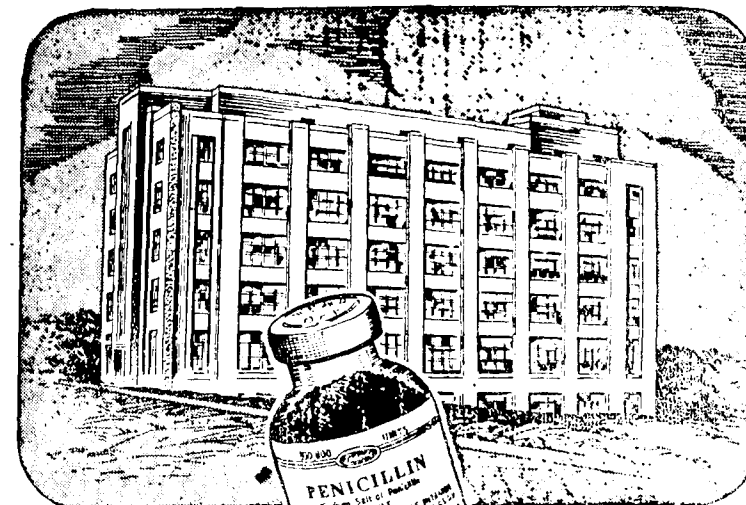
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cumulation of clinical data from mili-
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availability is stimulating further re-
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Penicillin is indicated for—

- Staphylococcal Infections
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Penicillin possesses a low toxicity.



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Treatment with Diphenan B.D.H. is characterised by the following advantages:—

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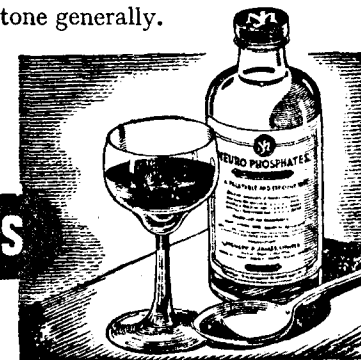
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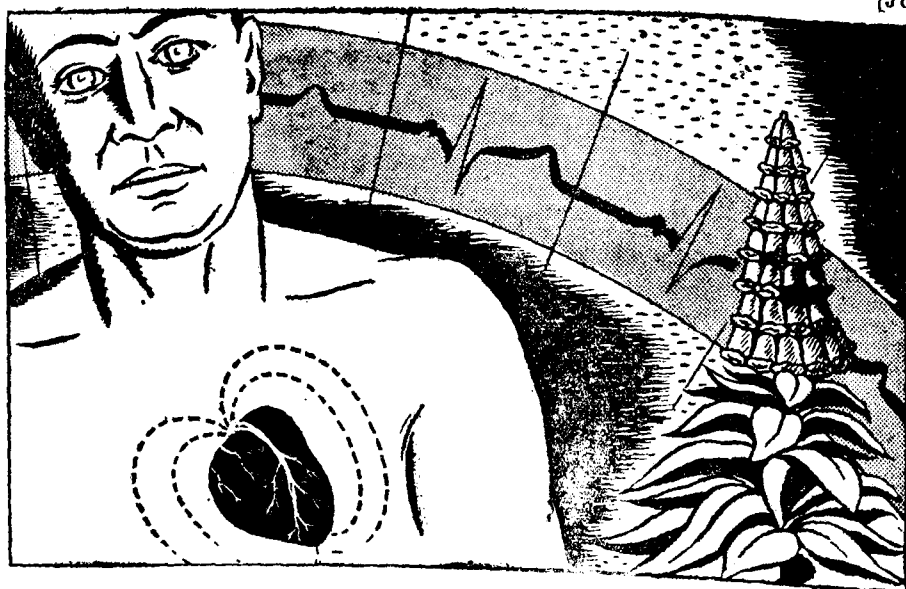
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1. Amenorrhoea
2. Dysmenorrhoea
3. Threatened Abortion

PHARMACOLOGY

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Original Articles

Inflammatory Conditions of the Lungs*

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THE subject of inflammatory conditions of the lungs allotted to me may, for my purposes, be considered under the following broad headings:

- | | |
|--------------------------------|-----------------------------------|
| I. The classical pneumonias. | (2) Syphilis; (3) Mycoses. |
| II. The atypical pneumonias. | V. (1) Fibrosis lung; |
| III. The allergic pneumonias. | (2) Abscess and gangrene of lung. |
| IV. The infective granulomata: | VI. The pneumoconioses. |
| (1) Tuberculosis; | |

I shall not in my lecture deal in detail with other than the atypical and allergic pneumonias. I shall be content with a few stray observations on the other inflammatory conditions mentioned above.

Pneumonia.—Division of the classical pneumonias into lobar and broncho-pneumonia is so familiar to all of us as to require no special mention. In practice it is not always possible to maintain a hard and fast line of demarcation between the two. The pneumococcus is, usually, associated with the picture of lobar pneumonia, rarely, the bacillus of Friedlander or the streptococcus. Broncho-pneumonia is, as a rule, secondary, but may be the primary lesion, rarely resulting from pneumococcal infection, especially in children under two years of age. It is more often caused by the streptococcus, the bacillus of Friedlander, occasionally the streptococcus, and too the bacillus pestis, b.anthraxis and b.mallei. It is, however, more commonly secondary to acute infectious diseases and may complicate chronic, infectious or other conditions. Of importance in this connection are measles, whooping cough and tuberculosis; less in importance, typhoid fever, malaria and kala-azar, among others.

The longstanding controversy about the onset and spread of lobar pneumonia is not yet finally settled. It is generally agreed, however, that lobar pneumonia is not a primary septicæmia with a secondary localisation

* A post-graduate lecture delivered on 23-2-1945.

in the lungs as was believed at one time. The spread is essentially bronchogenic. There is still some doubt between the lumen and wall of the air passages as the channel of extension. (HADFIELD and GARROD, 1943, and MAURICE DAVIDSON, 1941).

The type of pneumococcus is known to play a determining part in the type of pneumonia. Pneumococcus type I produces a lobar pneumonia true to classical type in its pathology, onset and course. Types I and II account between them for over 60% of lobar pneumonias. Incidentally they are exogenous in origin. Type III and Group IV infections are endogenous. Group IV has been differentiated into 29 separate types by Miss. COOPER. The minute typing of pneumococci is an essentially American luxury. There seems to be some evidence that the incidence and nature of complication in pneumonia is determined by the type of the infecting organism. There has so far been no confirmation of this suggestion. It is unfortunate that we have not got into the routine habit here, even in big hospitals, of putting up for culture the sputum and blood of our pneumonic cases. Facilities for typing the organism are practically non-existent. We are at the moment content with blaming our proverbial lack of resistance for the delayed resolution and complications of many of our pneumonia cases. Deep X-ray therapy seems to hasten resolution if it is delayed.

The only statistics, to which I am indebted to Drs. CHERIAN and KRISHNAKUTTI MENON, COL. McROBERT's house physicians, that I can give you of our pneumonias are their mortality, year after year, from 1938 to 1944 in the Madras General Hospital. They are arranged separately for pneumonia and broncho-pneumonia.

Lobar Pneumonia

Year	Admission	Deaths	Percentage	Year	Admission	Deaths	Percentage
1938	315	78	25	1942	221	39	18
1939	392	96	24	1943	237	32	14
1940	390	76	19	1944	334	35	10
1941	325	49	15				

Broncho-Pneumonia

Year	Admission	Deaths	Percentage	Children under two years.	
1938	302	81	27	A	D
1939	320	91	28	...	...
1940	294	78	27	...	...
1941	349	102	29	...	...
1942	208	40	19	145	51
1943	251	61	24	58	10
1944	341	57	17	63	24
				115	24

They reveal the progressive reduction, in the mortality of lobar pneumonia, effected by sulphonamides between 1938 and 1944 from 25 to 10 per cent. The mortality of broncho-pneumonia has also been reduced, but to a less extent because it is often secondary and too because of the proportion of children under two years of age.

There is still an undoubted feeling that while sulphonamides have definitely reduced the mortality of pneumonias, they have increased its morbidity. Our records are too incomplete for one to analyze this impression. It is there, however, all over the world. I have a feeling that it is

more apparent than real due to larger use of X-rays in diagnosis and that the dosage of sulphonamides may not be adequate and sufficiently sustained.*

Sulphonamide therapy has to be not only adequate and sustained but as far as possible specific. There should thus be very effective laboratory check by early bacteriological control and frequent estimation of the concentration of the sulphonamides in the blood. We are lacking in both and have to fall back on clinical presumption of the nature of the infection. It is, therefore, safe to use a drug which is more comprehensive in action. So far as pneumonias are concerned, sulphapyridine is the drug of choice. But it is so ill-borne that in practice sulphathiazole and, more recently, sulphadiazine and sulphamerazine have taken precedence. They were, before penicillin, more or less obligatory in staphylococcal infections.

The effectiveness of sulphonamides has given rise to an unfortunate complacency in treatment. We have begun to think that if we have given a suitable sulphonamide in adequate dosage and frequency, we have done all that is necessary for the patient. The fact is that there is still need for general and symptomatic treatment and scope for discrimination and fine judgment to minimise discomfort. Penicillin is not at the moment indicated except in staphylococcal pneumonia and for septic complications.

Influenza.—Influenza (LESCHAR, 1944) is now primarily a virus disease. Two viruses, A and B, have now been isolated for some years. They are not the whole story, for their anti-body titre is not proportional to one's immunity to influenza. This has necessitated the postulate of a third type, Y.

Primary uncomplicated influenza is essentially a disease of the upper respiratory tract (down to the trachea). The lower respiratory tract is involved only in complications, rarely by the extension of the virus itself (then constituting perhaps a variety of atypical pneumonia), generally due to secondary infection with the *haemophilus influenzae*, *micrococcus catarrhalis*, *pneumococcus*, *Friedlander's bacillus*, *streptococcus viridans* or *haemolyticus*, or, rarely, *staphylococcus aureus*. Influenzal pneumonia is often associated with bronchiolitis. It is thus rarely lobar, generally broncho-pneumonic, haemorrhagic and interstitial.

Chemotherapy has no place in the treatment of the virus phase of influenza. There seems to be a definite scope for prophylactic use of A and B viruses shortly before or at the beginning of an epidemic. Secondary infection calls for an appropriate sulphonamide or penicillin.

Tuberculosis.—I wish to plead for a long view of the disease in the treatment of pulmonary tuberculosis. With up-to-date sanatorium treatment and modern surgical measures, it is no longer necessary to say with the cynic 'call no man cured of tuberculosis till he is dead.' But the infection once in, ubiquitous as it is, is always there. It is necessary to make suitable plans in our treatment.

A prescription containing salicylates or calcium should be relegated to the museum. In practice it too often takes the pride of place in our treatment. It has given rise to the dangerous impression that once a patient takes these two drugs, especially calcium, preferably by the needle, he has done all that is necessary to ensure a quick and lasting cure. To

* Archibald Dick (*Lancet*, 1945, i, 141), has since found on a study of 161 cases that the final outcome in pneumococcal lobar pneumonia cannot be correlated with the blood concentration of sulphapyridine. There appears no reason to exceed the recognised dosage of 2 g. initially followed by 1 g. every four hours for seven days.

the treatment of abscess lung. In Madras, deep X-ray therapy has been tried on an extensive scale. Recent results have belied the earlier hopes raised by irradiation.

Care during operations on the upper respiratory tract to prevent aspiration, adequate treatment of septic sinuses and post operative measures to prevent atelectasis are of accepted prophylactic value against post-operative abscess.

Pneumoconioses.—The pneumoconioses are occupational hazards due to the long continued inhalation of dust. They are (1) silicosis, dangerous and often fatal, produced by dust containing silicon dioxide (quartz) and (2) asbestosis, caused by dusts containing a silicate. Both silicosis and asbestosis predispose to tuberculosis. Their liability to malignant infiltration is questioned.

Fibrosis is the essence of pneumoconiosis. Fibrosis is induced only by the operation of a chemically active dust. Inhalation of inert dust may cause lymphatic blockage but it does not produce genuine fibrosis.

Silica and asbestos silicate are apparently the only two chemical irritants to the lungs. Silicosis and anthracosis are thus the two genuine pneumoconioses. Pure anthracosis and siderosis are not accompanied by fibrosis, for coal and iron ore dust are chemically inert. If fibrosis results from exposure to them it is from previous or simultaneous inhalation of chemically active silica, constituting silico-anthracosis and silico-siderosis.

There are a number of other dusts, inhalation of which causes changes in the lungs short of actual fibrosis. The resulting changes are not true pneumoconioses. Byssinosis, for instance, due to inhalation of cotton wool, is considered an allergic reaction rather than a genuine pneumoconiosis.

The size of the silica dust which can induce fibrosis must be below 5, generally 0.1 to 3 μ . It is presumed that it exerts its injurious effect through a slow transformation into silicic acid. If this solubility of retained siliceous material could be reduced the usual fibrotic response could be diminished or prevented. This has been experimentally demonstrated and clinically confirmed by the admixture of fine aluminium powder. Metallic aluminium dust was found in Canada and England to produce no fibrosis. The Germans have, however, described various types of lung disease due to aluminium dust. It is not clear at the moment where the fallacy lies. (*B.M.J.* 1944).

The pathology museum of the Madras Medical College has just secured two specimens of silicotic lung, which and a slide I am demonstrating to you today by the courtesy of Dr. D. GOVINDA REDDY, the Professor of Pathology. One of them was secured by him from Mysore and is tuberculous as well. It belongs to a miner from the Kolar Gold Fields. It and its companion specimens in Mysore should dispose of HADFIELD & GARROD's (1943) and MAURICE DAVIDSON's (1941) statements that silicosis is unknown in the Kolar Gold Fields. Either it has gone unrecognised or unreported or not allowed to develop by some measures. It is known that the time factor, running on to several years of exposure, is important.

The other specimen is non-tuberculous and is from a destitute who died in Madura shortly after admission. Ante-mortem, clinical and radiological, and post-mortem, macroscopic examination revealed no malignant

change. No previous history is available of the patient who has furnished this specimen.

The atypical pneumonias.—The term primary atypical pneumonia is a modern variant of the expression 'pneumonitis' originally introduced in the U.S.A. to indicate ill-defined inflammations of the lung, accompanied by localised patches of consolidation or consolidations, recognisable only by X-rays, not conforming to the classical features of pneumonia. It is now generally known as primary atypical pneumonia, quite a descriptive term, or virus pneumonia, because of its alleged virus origin.

Etymology still remains as "essential suffix of the terminology" (*U.S. Naval Medical Bulletin*, 1944). A virus apparently infectious for mice, guinea pigs and ferrets, one infectious for the mongoose and two recovered from cats have been isolated. An agent from sputum and lung tissue from certain cases of atypical pneumonia has been transmitted in chick embryos and shown capable of producing pulmonary lesions by intra-nasal inoculation in either cotton rats or hamsters. Some known viruses cause similar lung changes. The psittacosis virus produces similar symptoms and signs, radiological and pathological appearances and identical antibody response, but it is often severe and fatal. It has, however, a wide natural habitat in domestic animals and is not confined to sick parrots. The influenza and some rickettsial viruses and viruses of lymphocytic choriomeningitis and lymphogranuloma are also known occasionally to produce such lesions.

Recently THOMAS and his associates (in the press, quoted by *Naval Medical Bulletin*, 1944), have isolated a new non-haemolytic streptococcus, designated streptococcus M. G., from the lungs of deceased rats. Specific agglutinins and precipitins against this organism have been demonstrated in convalescent sera of numerous patients with atypical pneumonia. The organism also satisfied other serological tests. It has been grown in 53/97 patients with atypical pneumonia, in acute respiratory infection without pneumonia (atypical pneumonia is often associated with tracheo-bronchitis), from pneumococcal and other bacterial pneumonias and in 5/57 normal throats. It is sulphonamide resistant but penicillin-susceptible; non-pathogenic to common laboratory animals. Its significance in relation to primary atypical pneumonia is obscure. But the titre of anti-bodies in convalescent patients was proportional to the severity of the illness. Question of symbiosis with a sole causative virus has not been ruled out. But the streptococcus M.G. is not a secondary invader with only a random or accidental association with primary atypical pneumonia.*

The disease is said to show a genuine rise in incidence, not merely better recognised (*Lancet*, 1944). But it is difficult to maintain this point in a disease whose recognition has been solely radiological till the very recent appreciation of the diagnostic nature of cold agglutinins. Most of the cases, hundreds of them, have been reported from the U.S.A., a reflection of the generalised use of radiology in the diagnosis of pneumonias.

Young adults are the chief subjects of the disease. But most of the cases have been reported from military camps. Overcrowding is a definite but not major aetiological factor. Unaffected carriers seem to have a role in spreading the disease.

* The disease has since been transmitted to human volunteers (*J.A.M.A.*, 1945, OXXVII, 144).

Morbid anatomy.—The disease is rarely fatal. In autopsies an interstitial pneumonitis has been found. Bronchitis and bronchiolitis with infiltration and exudation in the peribronchial and peribronchiolar tissues have resulted in bronchial block and alveolar collapse. Histologically, mononuclear cells infiltrate the interalveolar septa and alveolar exudate. The muco-purulent bronchial exudate is poly-morphonuclear.*

Symptoms.—Incubation period cannot be accurately estimated, but is placed between 7—21 days.

Onset is gradual with fever and signs of infection of the respiratory tract. Both are usually moderate. There is vaguely localised pain or tightness in the chest but no shortness of breath and no acceleration of respiration. Cough is irritable and persistent, with greenish muco-purulent sputum. There is no cyanosis, and herpes labialis is uncommon.

Signs.—There are localised rales. Dullness is rare. Bronchial breathing is rare too.

The signs are essentially radiological and consist chiefly of small areas of moderately dense opacity, rarely involving a whole lobe. There is a special predilection for the lower inner zones, the cardiophrenic angle. The shadows are thus obscured on the left side behind the cardiac silhouette. Upper and right middle lobes may also be involved, but affection of more than one area is not common. McCARTHY (1943) groups the radiological findings as follows:—

(1) Hilar enlargement with increased prominence of linear markings; later there is development of parenchymal density (less than in lobar pneumonia) with striæ visible through it.

(2) Patchy involvement of a single lobe suggesting a broncho-pneumonia. This type appears to resolve readily.

(3) Infiltration radiating from the hilar regions and closely simulating pulmonary tuberculosis.

(4) Extensive lung markings with multiple small lesions as in miliary tuberculosis. The lesions in one lobe may appear to resolve while others appear to develop in different lobes.

There is no leucocytosis. No predominant growth is obtained in sputum culture.

Course.—The course is usually mild. The fever terminates by lysis. Clinical recovery takes 7 to 14 days, sometimes as long as three weeks and radiographic remission twice as long. It is only then that the patient is fit to return to service. Complications and second attacks are rare. Complete recovery is the rule.

Diagnosis.—The disease was undoubtedly missed till recently. It was often diagnosed as a mild pneumonia, as influenzal in origin because of the very easy and complacent diagnosis of 'flu' that is often made to fulfil the demand for a label in diagnosis of P. U. O.'s, especially those with a respiratory catarrh.

Now that one is alive to the possibility of the disease, diagnosis should be easy. Mass radiography revealed some unnoticed cases in the British

* For a fuller account of the pathology refer to A. Golden, *Archives of Pathology*, 1944, XXXVIII, 187, editorially noted by the *Jour., Amer. Med. Assn.*, 1944, CXXVI, 1152.

forces. Americans had already some years ago reported small areas of consolidation in colds and sinusitis.

Differential diagnosis presents few difficulties except in upper lobe cases. Then serial skiagrams should help and cold agglutination test. Other transitory pulmonary infiltrations, the eosinophilic, for instance, are spotted by blood count. A laboratory test of special diagnostic value is the so-called cold agglutinin test (TURNER ET AL, 1943, *Lancet*, 1943 and 1944, HEINTZELMAN and SELIGMANN, 1944). It is based on the presence of agglutinins which cause clumping of homologous or group O red cells at low temperatures. Serial dilutions of serum are mixed with washed suspensions of group O red cells in isotonic solutions of sodium chloride. The tubes are allowed to stand overnight in a refrigerator at temperatures of 0 to 5° C. Readings are made the next morning. The test is not affected by sulphonamide therapy. A positive reaction in a dilution of 1 in 32 and over is considered diagnostic. The test is not infallible. Not all cases yield a positive reaction. It is present besides in a number of other diseases; mumps with orchitis, trypanosomiasis, paroxysmal hæmoglobinuria, some hæmolytic anæmias, pernicious anæmias, leukaemia, lymphoblastoma, cirrhosis of liver, venous thrombosis and gangrene among others.* But the diagnostic value of the reaction for atypical pneumonia lies in its being the only condition with its clinical picture in which the test is positive. It must, however, be repeated for it may be positive only some time during the course of the disease, generally about the end of the first week and for long after. It is valuable in withholding sulphonamide therapy in pneumonia of undetermined ætiology and in evaluation of upper lobe lesions as against pulmonary tuberculosis.

Prophylaxis.—Avoid overcrowding, undue exposure to wet and cold, especially of new arrivals, promote accurate assessment of early cases. Lessen air-borne infection by laying dust and using aerosol sprays.

Treatment.—Sulphonamides are no good.

START (1944) has reported sudden and sharp decline in temperature, disappearance of symptoms and rapid convalescence in nine cases with Penicillin. Total dosage of penicillin given varied from 180,000 to 1,280,000 units, with a mean of 420,000 units. Average interval between the institution of penicillin treatment and decline of temperature to normal and its maintenance there was 3–5 days as against a control of 21 days. The value of penicillin in reducing morbidity will be appreciated by OWEN's calculation (quoted by the *Lancet*) of loss of 55 man-years in one year in his camp.

Experimentally, ornithosis virus infection is highly susceptible to penicillin. Ornithosis virus is similar to, if not identical with, the virus of a typical primary pneumonia. The psittacosis virus is also sensitive to penicillin.

The allergic pneumonia.—There is already an allergic hypothesis (LAUCHE, 1928, and SHARP and BLAKE, 1930) formulated to explain the phenomena of classical pneumonia. By the term allergic pneumonia here, which I owe to SOMMER (1943), is meant lung infiltration regarded as allergic or asthmatic in character.

FRIEMODT-MOLLER and BARTON (1940) were the first to describe under the name of 'eosinophile lung' a group of cases of "a pseudo-tuberculous

* It has recently been reported in eosinophilic lung.

condition associated with eosinophilia" from among cases referred to their sanatorium as tuberculous.

To WEINGARTEN (1943), however, belongs the credit of raising this complex of symptoms to the status of a new disease entity, which he called 'tropical eosinophilia'. It is now also known as WEINGARTEN's syndrome, as distinct from LOFFLER's syndrome (1932 & '36). Generally speaking, Löffler's syndrome is a transitory and migratory pulmonary infiltration with eosinophilia. Weingarten's syndrome is a chronic disseminated, focal broncho-pneumonic infiltration of the lungs, with eosinophilia of the blood and sputum. It undergoes spontaneous remissions and exacerbations over several years and completely remits only on arsenical therapy. WEINGARTEN accidentally discovered the value of arsenic from the relief given by it to a patient who had it for associated syphilis. WEINGARTEN recommends a usual course of six injections of nearsphenamine, (0.15, 0.30, 0.45 g. four times), given at 3-4 days' interval, dissolved in calcium gluconate and with 200 mg. ascorbic acid added to it.

WEINGARTEN claimed that his syndrome was a new and hitherto unrecognised, disease entity, totally unrelated to Löffler's syndrome. A spate of articles has since appeared confirming and amplifying Weingarten's observations. Some (HEILIG and VISVESHWAR, 1943, & OWEN, 1943) have accepted his claim in toto, while others (APLEY & GRANT, 1944) see in his syndrome a generalised broncho-pneumonic phase, which has come to stay, of Löffler's syndrome and its transitory roentgen shadows with varying localisation, extension and structure.

WEINGARTEN had himself referred to his colleague BERGER's satisfactory results with acetylarsan injections. He had also tried one case with stovarsol orally, 4 gr. b.d. for 10 days. TREU (1943) made an independent contribution to treatment with acetylarsan. He does not say why he chose arsenic. EMERSON (1944) got good results with two 10-day courses of garbarsone, 0.5 g. daily. The *Lancet* (1944) also refers to the use of mapharside and by mouth of acetarsol, gr. 2 b.d. for two 10 day courses.

I was first struck with a 70% eosinophilia in the blood film of a medical student in Tanjore in 1931. We were puzzled by it. Just then we saw a report of three cases of high unexplained eosinophilia by SANGUINETTI (1931). It led nowhere, even as occasional further cases which I came across. In 1936, a member of my own family got a high eosinophilia associated with hacking cough and a palpable liver. He was completely negative on investigation of his lungs and gastro-intestinal tract and blood, urine and faeces. I then secured many references. They gave me no clue to diagnosis. I sent a query to the *J. A. M. A.* (1936). The query and the answer are given below. The position remained to my mind unelucidated.

Q. :—"Will you kindly let me know the diagnostic criteria of eosinophilic leukemia? How many cases have been reported in the literature? Do you agree with the statement in PRICE's *Textbook of the Practice of Medicine* (Oxford Press, 1933) that eosinophilic leukemia is consistent with very few immature eosinophils in the peripheral circulation? Which of the two is the more dependable sign of immaturity of eosinophils: lobation or the staining of the granules? Is it possible to make a diagnosis of eosinophilic leukemia without examination of a lymph gland section and bone marrow puncture material? Do you agree that as regards the peripheral blood the same criteria should apply as for the other granulocytic leukemia?"

A. :—"The salient diagnostic criteria of eosinophilic leukemia as summarised from the literature are persistently increased white cell counts as high as 236,000, an unusually large percentage of eosinophils, absence of an etiologic factor to account for the blood picture, a high basal metabolic rate, splenomegaly with but few exceptions, and biopsy evidence of infiltration of the blood-forming tissue with a predominance of eosinophils. The eosinophils in the peripheral blood and the tissues are mostly of the adult type.

"There have been about fourteen cases which are grouped in the medical literature as eosinophilic leukemia or persistent hyper-leukocytosis with eosinophilia of unknown etiology that satisfy these diagnostic criteria. In ten of the cases reported the disease was chronic in its course, while in four instances the course was acute. Many authorities doubt the existence of a true eosinophilic leukemia because of the predominance of blood-forming tissue. D.J. STEPHEN's report, however (*Am. J. M. Sc.*, 183: 387, March 1935) seems quite convincing. In the case that he studied, bone marrow, spleen, lymph nodes and liver showed definite leukemic changes and a significantly higher proportion of eosinophilic myelocytes to mature eosinophils than in other tissues. Myeloblasts were present in the peripheral blood and blood-forming tissues. The clinical and pathologic observations were those of acute leukemia. The author employed the term acute eosinophilic leukemia in view of the predominance of eosinophils in the blood and tissue and to differentiate it from other types of myelogenous leukemia. The lack of neutrophilic myelopoiesis was reflected in the scarcity of neutrophilic myelocytes in the bone marrow, the striking lack of neutrophilic granulocytes in the peripheral blood and in necrotizing inflammatory exudates. The chronic variety is reviewed by M. H. BASS (*Am. J. Dis. Child*, 41: 1394, June 1931). Some of the cases are not clear and their leukemic nature may be debated.

"The statement made in PRICE's book coincides with the data recorded in medical literature.

"The more dependable sign of immaturity is the nuclear structure.

"It is not likely that a diagnosis of eosinophilic leukemia could be satisfactorily established without some information regarding the blood-forming tissue.

"Too little is known about the eosinophil cell for one to be dogmatic. Apparently from the case reported if such criteria were used many of them could not be classified as leukemia. This subject needs further study. A correct answer cannot be given to the last question on the basis of abstract reasoning."

In 1936 I had occasion to investigate a boy, Lakshmanan, 8 years old, admitted under DR. M. R. GURUSWAMY MUDALIAR, in the General Hospital, Madras, on 12-2-'36 and discharged on 31-3-'36. The patient came in for fever and cough and had a generalised discrete adenopathy and splenomegaly (just +) hepato - (4 fingers +) megaly. His eosinophiles were 58% of 23,400 total white cells per c.mm. on admission. Skiagram of his lungs showed marked enlargement of hilar and mediastinal glands and some infiltrative changes extending to the right infraclavicular region. Smears made from biopsy of his gland and bone marrow revealed mere

eosinophilic infiltration and no other structural alteration. He vomited a round worm. The patient was given, besides santonin treatment, iron, arsenic and cod-liver-oil and was discharged with 57% eosinophils out of 11,900 white cells per c.mm. On 19-6-'36, there were 67% of 31,250.

In the meantime, PINEY's (1934) reference to 'arsenic progressiva' of the HOFFMANN LA ROCHE for leukæmia struck me with its simplicity, especially Fowler's solution given by mouth, commencing with m i, t. d., increasing by m i. t.d. per day till 10-12 m. t.d. are given, and then reducing by m i t.d. per day to nothing. I was not convinced that the majority of the cases reported as eosinophilic leukæmia were really leukæmic. It struck me however that these unexplained eosinophils were manifestations of irritation of the bone marrow and it could be soothed with 'arsenic progressiva.' I went up to m xv, t.d. It was in 1939 that I started systematically trying this simple treatment. My first case was a girl of nine years brought to me for severe asthmatic trouble. I found a high eosinophilia. The results were striking and highly gratifying and lasting. I have since tried it in general with more or less gratifying results. As WEINGARTEN deplores 'the peculiar conditions of consulting practice in India, where patients do not continue to attend when they are relieved and are often lost sight of after a single consultation' have made it impossible to follow up one's cases at all closely.

Latterly, after reading WEINGARTEN's article, I have been using N.A.B., mapharside or acetylarsan: six injections at five days' intervals of N.A.B. 0.3 g. each and mapharside 0.04 g. each intravenously; and acetylarsan 3 c.c. each for adults, 2 c.c. each for children of the child's make intramuscularly. The intravenous injection is given dissolved in glucose solution. Calcium or vitamin 'C' is not used. Neither is essential. The results are uniformly gratifying.*

As PATEL (1943), VAIDYA (1943), and SIMEONS (1943) point out arsenic has for years been used for asthma among medical practitioners in India. I have, in 1925, in accordance with the then teaching, given N.A.B., only a couple of injections, for asthma. HURST used to teach in those days about the sedative effect of arsenic on the so-called asthma centre. He gave it up later. The famous D'SOUZA's treatment for asthma in Madras was presumed to be based on arsenic: soamin, adrenalin and pituitrin combined. His treatment was sometimes a sensational success, following failure of orthodox treatment, and sometimes an unnoticed, because excusable, failure. Some of his cases relapsed after several years. I have known at least two cases of optic atrophy following his treatment and could never make up my mind to try soamin for asthma and take the risk of producing blindness in a disease which can and should be managed better. I know that soamin is used by many practitioners, but never with astounding results. Sodium cacodylate is worse.

It is difficult to subscribe to WEINGARTEN's contention that his cases of tropical eosinophilia are a totally different disease entity from Löffler's syndrome. APLEY and GRANT (1944) summarise the present position well. I believe myself that Weingarten's syndrome is a tropical broncho-pneumonic variant of Löffler's syndrome. We do not know the circumstances that

* E. Soysa and M. D. S. Jayawardene (*Brit. Med. J.*, 1945, i, 1) speak very highly of carbarsone and stovarsol. They have used both for 6-33 days. I have used carbarsone in three cases for ten days each without effect.

infrequent. LOFFLER himself stressed on repeated roentgenoscopy necessary EVERY OTHER DAY for a definite diagnosis. Diagnosis is easy if one only remembers the possibility of eosinophilic lung in mind, especially in the presence of an asthmatic syndrome, with or without fever, particularly when the duration is short. Physical signs are more bizarre than in asthma, a varying combination of rales and rhonchi. We have not found splenic enlargement. I have been looking for it after Weingarten's description of it.

There are to my mind three stages of the disease, acute, sub-acute and chronic. The acute variety is highly febrile, its onset is acute and it may simulate broncho-pneumonia or even acute tuberculosis. The sub-acute form may simulate bronchial asthma or tuberculosis and may be slightly febrile. The chronic variety may be confused with mild chronic respiratory catarrh, tuberculous or non-tuberculous. I have seen all three varieties.

Radiologically, the focal broncho-pneumonic shadows vary in density. I have already referred to the wide variation possible in localisation, extent and structure of the shadows.

Differential diagnosis has to be made from lobar or more often broncho-pneumonia, primary or secondary, atypical pneumonia, tuberculosis, acute or chronic, miliary or fibrocaceous, and asthma, to mention the common mistakes. FRIEMODT-MOLLER and BARTON (1940) had to collect cases wrongly referred to them as tuberculous. The danger now is, I am afraid, the other way about. Diagnosis must depend on the white cell count, total and differential, repeated, and, at the same time, on a meticulous search for tubercle bacilli in the sputum, expectorated or swallowed, by culture, if necessary. One has also to bear in mind known causes of eosinophilia such as helminthic infections, skin disease etc. Trichiniasis is known in Europe to cause very high eosinophilia and must be borne in mind.

Radiologically, similar shadows can be produced in tuberculosis, bronchiolitis, influenzal, septic, etc., carcinomatosis, lymphomatosis, chronic passive congestion and so on. Diagnosis has naturally to depend on other signs of the diseases mentioned.

The total number of eosinophiles is more important than its relative percentage. It is impossible to lay down a minimum standard of eosinophilia for eosinophilic lung. European writers seem to take anything over 6—8% as suggestive of the eosinophilic syndrome. Apart from the fallacy of accepting only the percentage figure, it is essential that in the tropics helminthic and other parasitic causes of eosinophilia should be rigorously excluded.

Pathogenesis.—One great obstacle to general agreement as to the pathogenesis is the lack of autopsy material, the disease being peculiarly benign. Our entire post-mortem information consists of a little known article of MEYENBERG (1942) on eosinophilic pulmonary infiltration: pathological anatomy and pathogenesis. His material consisted of four autopsies, death being due in three cases to military accidents and in one to short tetanus. One contained two dense, airless foci, the size of a plum and cherry respectively, infiltrated with eosinophiles which had invaded blood and bone marrow as well. Four weeks before death the man had mild influenza without pulmonary symptoms. Two had ascarids in the gut. Two had bronchitis and bronchiolitis with broncho-pneumonia, the two

others had lobar pneumonia. No mention is made, at any rate in the abstract, of the finding of any larvæ in the lungs, not even in the two cases which showed intestinal ascarid infestation. Eosinophilic infiltration was thus allergic rather than actually mechanical in effect.

LOFFLER himself considered his syndrome as an extremely favourable allergic manifestation of extremely benign tuberculosis. The condition has also been considered allergic, as a manifestation of peri-arteritis nodosa, of sarcoidosis etc. The location of the eosinophilia may determine the site of the allergic reaction. Overflow of the eosinophiles in the circulation may merely be an index of a generalised mesodermal reaction in which the vascular system plays a predominant part. In eosinophilic lung the lungs are the shock organ, the site of vascular allergy (HARKAVY, 1943). 52 of MAIRES' (*J.A.M.A.* 1944) 100 cases have presented other allergic manifestations. Round and hookworm and filaræ, larvæ of which are known to pass through the lungs in their development inside their human host, mites pollens, amœbæ, flukes, etc., have from time to time been implicated.

SOMMER (1943) has given definite proof of ascaris allergy. He described a tuberculous woman who developed a contra-lateral eosinophilic anaphylactic 'pneumonia' from a single ascaris infection on the top of a previous sensitisation. SOMMER demonstrated this sensitisation by dermal intradermal and direct inhalation tests. He also refers to two previous experimental infestations. KOINO swallowed 2000 eggs and suffered from a non-eosinophilic pneumonia caused mechanically by the migration of large numbers of ascarid larvæ. He was probably not sensitized to ascaris. MULLER swallowed only a few eggs. He had previously an eosinophilic infiltration of the lung and was probably sensitised to ascaris. He developed the typical clinical picture of eosinophilic lung. No larvæ were found in his sputum, which was typically yellowish. SOMMER attaches great diagnostic importance to the colour of the sputum.

Ascarid infestation in a sensitised individual is only one cause of eosinophilic lung. CARTER ET AL (1944) demonstrated mites in the sputum of 17/28 patients with respiratory disorders. The mites disappeared or tended to disappear after arsenical therapy. They do not, however, report on the normal incidence of mites in the sputum.

We have so far not had a positive histological report in the sputum either of larvæ or recently of mites (done only twice or thrice).

The relationship of eosinophilic lung with asthma is not quite clear. Frequent serial skiagrams of the lungs and white cell counts are necessary to throw more light on it. It has been suggested that there is eosinophilia in asthma but it is confined to the tissues and has not overflowed into the blood. Is eosinophilic lung then asthma with eosinophilia? I used to think that it was not, but I feel now that we cannot be sure unless we take serial skiagrams to find out if there are or not at any time eosinophilic deposits in the lung fields. I have recently known cases without such radiological infiltration as seen in one picture, show as striking a response to arsenic as cases of typical eosinophilic lung. Is there eosinophilia without asthma? I used to think that there was. I cannot be so sure now without serial skiagrams.

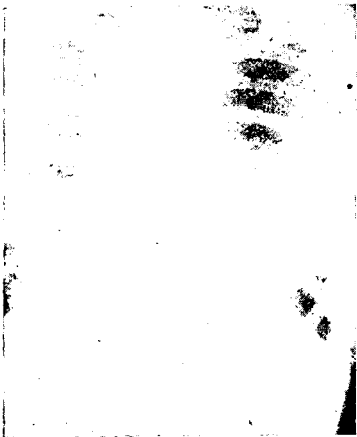


Fig. 1.



Fig. 2.



Fig. 3.



Fig. 4.



Fig. 1.
Feb. 1944.
Left basal pneumonia.

Fig. 2.
1-2-45. W.B.C.
Total 17,800.
Differential: P. 25,
L. 9, M. 2, E. 60,
E. 10,680.
Exudative patch
Rt. mid. zone py-
ramid shaped base
towards periphery
2nd and 3rd inter-
costal space, ante-
rior. Small infil-
tration 6th space
2 c.m. in diameter
fine mottling left
lung.

Fig. 3.
3-2-45. W.B.C.
Total 18,000.
Differential: P. 25,
L. 20, M. 2, E. 52,
E. 9,360.
Consolidation
more dense in the
upper zone. More
infiltration right
base.

Fig. 4.
5-2-45. W.B.C.
Total 14,000.
Differential: P. 36,
L. 15, M. 2, E. 47,
E. 6,580.
Consolidation still
dense. Right base
still clearer. Slight
haziness. Left
mid. zone coales-
cing infiltration.

Fig. 5.
7-2-45. W.B.C.
Total 10,100.
Differential: P. 75,
L. 20, M. 1, E. 4,
E. 404.
Lung Very much
clearer only a
small patch in the
right middle zone
2 c.m. in diameter.

Fig. 6.
13-2-45. W.B.C.
Total 13,000.
Differential: P. 60,
L. 12, M. 2, E. 26,
E. 3,380.
Lung fields clear
except one left
lower zone.

determine this variation in localisation, extension and structure, and above all duration. Intermediate cases have been described. The relationship between the two syndromes is comparable to that of status asthmaticus and asthmatic proxysm. LOFFLER himself described "shadows in any position and of any size, of variable structure, homogeneous or more frequently patchy or cloudy, more or less sharply circumscribed, single or multiple, unilateral or bilateral". (Quoted by Apley and Grant).

I must here refer to our latest case of eosinophilic lung, a transitory, migratory and recurrent, pulmonary infiltration with eosinophiles associated with cutaneous allergy. Mr. K., aged 23, a medical student, was admitted under COL. McROBERT in the General Hospital, Madras, on 31-1-45 with a day's fever and cough and chest pain and distress. He had rales and rhonchi, more marked on the right side, no dullness, no bronchial breathing, no enlargement of liver or spleen. Temperature was high. There was a thick yellowish muco-purulent sputum, negative for acid fast bacilli. He had on admission 60% eosinophils out of a total white cell count of 17,800. Skiagram (fig II) showed a patch of consolidation in the right upper lobe. Serial skiagrams taken on alternate days (Figs. III, IV, V) and serial white cell counts (vide table) are self-explanatory of the spontaneous progress and quick regress of the disease. For the patient had no specific treatment excepting ephedrine Hydrochlor gr. 1/4 t.i.d. s.o.s. He broke out under ephedrine into a general urticarial on the fourth day of the disease. Cold agglutinins were present in a dilution of 1 in 16.

Serial Eosinophilic Count of Mr. K.

Date	Total white cells c. mm.	Eosinophilic percentage	Total E. c. mm.	Remarks
1-2-45	17,800	60	10,680	Exudative patch right upper zone. Fine mottling left lung.
3-2-45	18,000	52	9,360	Consolidation denser and more extensive in right upper zone. Broncho-pneumonic infiltration over both bases.
5-2-45	14,000	47	6,580	Consolidation still dense. Right base clearer.
7-2-45	10,100	4	404	Lungs very much clearer. A small patch in the right upper zone.
8-2-45	10,000	3	300	
10-2-45	9,400	6	564	Lung fields practically clear.
13-2-45	13,000	26	3,380	Reappearance of broncho-pneumonic infiltration both bases.

About this time last year, he was in hospital for a similar complaint in another unit. No white cell count is recorded. But his then skiagram is available (Fig I). He was then put on sulphathiazole and broke out, as now without sulphonamide, into a profuse urticarial rash.

There is no doubt that this case conforms in every detail to LOFFLER's original description. There is no doubt too that no such case has been described in India before and more have not been described elsewhere because X-rays for minor maladies are either not taken at all or are

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Penicillin *

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PENICILLIN as at present obtained is a metabolic product synthesized by the mould *Penicillium notatum*. When partial purification and greater concentration has been achieved, the product is dried in vacuo producing a golden yellow powder which is suitable for all clinical purposes.

This is an unstable nitrogenous compound and probably a protein.

This powder is not Penicillin in the strict sense of the word, containing as it does only 10 to 30 per cent. of the active substance, the rest being formed of impurities which luckily are not toxic. Pure Penicillin is acid and tends to break down easily in its pure form. So the calcium and sodium salts are now available for clinical use; the calcium salt is less hygroscopic, easier to handle and liable to deterioration and widely used for local application.

Even these salts are not very stable, in fact very much more unstable than many drugs commonly used clinically for the following reasons:—

* Proceedings of a meeting in an Indian General Hospital.

(1) Easily destroyed by acid and alkalis; (2) Easily destroyed by heavy metals; (3) Easily destroyed by alcohol; and (4) Easily destroyed by oxydising agents. It is best, therefore, that wounds are cleaned with soap and water before the application of Penicillin.

Since Penicillin loses activity when heated above body temperature, it is always preserved in a refrigerator.

This drug is also destroyed by Penicillinase, an enzyme elaborated by many air borne bacteria, such as the members of the subtilis group and members of the coliform group. Hence the necessity to avoid exposure to air and observe the strictest sterility in the handling of this drug.

Its action is bacteriostatic, namely it interrupts cell division without actually killing the bacteria, or conversely as soon as the influence of this drug is removed, the bacteria are able to resume multiplication. The good effect of Penicillin depends on simultaneous action of leucocytes and other defence mechanisms of the body which deal with the bacteria while the multiplication is held in check by Penicillin.

As a rough working principle it may be taken that all gram-positive organisms and gram-negative cocci are sensitive to this drug and only gram-negative bacilli are insensitive.

It has been experimentally found that it is rapidly absorbed from subcutaneous and muscle tissue when injected there, and passed into blood stream in about 15 minutes in sufficient anti-bacterial concentration when the correct dose is given. It is then rapidly excreted in urine and traces of it are found in bile and saliva, but not in tears or pancreatic juice. It could not be detected in the cerebro-spinal fluid and clinical experience has fully confirmed these observations as infection of the meninges could not be effectively treated by systemic administration and intrathecal administration was necessary to bring about effective bacteriostatic concentration of the cerebro-spinal fluid. Similarly the pleura and serous membranes of joints are relatively impermeable to Penicillin, so that infections of these sites are best treated by local applications.

Administration by mouth or rectum is unsuitable since the acid of the stomach and the bacteria of the large intestine inactivates the Penicillin before it could be absorbed. Systemic administration is by intramuscular or subcutaneous route. Little is gained by intravenous injection, as after intramuscular injection maximum concentration is reached in the blood within fifteen minutes.

The dosage of Penicillin is spoken of in terms of units. A unit is an arbitrary standard and is defined as the amount of Penicillin contained in one cubic centimeter of a certain buffer solution. 15,000 units has been arrived at as more or less the correct dose for an adult for intramuscular or subcutaneous injection. In the fourth hour after an injection of this dose, it has been found that sufficient bacteriostatic concentration in blood no longer exists; hence the necessity for repetition of the dose three hourly. No advantage is gained by increasing the single dose above 15,000 units. In moderate infections three hourly injections day and night for 3 days are sufficient; but in severer infections this may have to be extended to longer periods with this modification that after the 3rd day the three hourly interval may be substituted by fourth hourly interval. The ruthless regularity of the needle pricks is not to the liking of some patients.

This drug can be administered by continuous intramuscular or intravenous drip method. The latter is not very advisable because of the complication of thrombo-phlebitis which may, of course, be obviated by a large dilution of the drug in Saline.

Local application of the drug can be done as an instillation of solution or insufflation of powder. To give a bulk to the powder, the dry Penicillin is diluted with sufficient Sulphathiozole powder as to give a known concentration. The concentration commonly used is 1,000 to 5,000 units per gramme. 5% of Magnesium Oxide is a good addition to this powder to prevent caking. Perfect asepsis should be observed during the preparation of this powder. The powder is used as an insufflation in superficial dirty wounds. One insufflation is not enough but has to be done once 24 hourly for 3 days at least. Early primary suture of wounds is facilitated by this procedure.

But deep wounds involving muscles instillation of solution *via* narrow rubber tubing is the method of choice. The number of tubes depends on the size of the wound. Each of the tubes is brought out from the depth of the wound through a separate stab incision. 3 c.c. of solution is instilled through each tube and the strength of the solution ordinarily used is 250 units per c.c. Higher strengths can certainly be used. If the wound is badly infected, it is advisable to instil twice a day for three days before suture. It was remarkable to find how quickly movement and strength were regained in a limb after primary healing of the wound. Muscle loss appears to be compensated if scar tissue is minimal which primary healing ensures. In compound fractures, partial suture of the wounds on the lines indicated above helps in a way to convert open fractures into close fractures. Penicillin cannot replace surgery.

Causes of failure.—1. Non-removal of slough or sequestra in the depth of the wound.

2. Inability for the drug to reach thick walled abscesses or serous cavities.

3. Too small or too infrequent doses.

4. Infection of the wound by Penicillin-resistant organisms.

Penicillin in penetrating wounds of the chest.—The common complication in chest wounds is hæmo-pneumo-thorax. A hæmo-pneumo-thorax which has not been aspirated early shows no evidence of infection for many days when signs of infection appear suddenly with pyrexia, pallor and furred tongue, the aspirated blood is not the usual pink colour but slightly purplish. Surprisingly enough in case where from the constitutional symptoms and the appearance of the aspiration of blood you expect septic infection, microscopic examination and cultural tests may prove negative for organisms the reasons for which I shall tell you presently. It is now an accepted procedure in every case of hæmothorax to aspirate as much fluid as possible and inject about 30,000 units of Penicillin in 50 c.c. of Normal Saline. As this is not rapidly excreted, aspirations are done only once in two or three days, with instillation of Penicillin each time. In many favourable cases 3 or 4 such instillations were enough.

The significant fact is that once pathogenic organisms present in the pleural fluid, it is unusual for drainage to be avoided, probably because the drug does not penetrate one or more loculi or fibrin clot.

Two types of Hæmothorax are recognised: (1) Fluid hæmothorax; and (2) Clotted hæmothorax.

In clotted hæmothorax, thorocotomy, evacuation of debris and blood clots, institution of intercostal drainage and instillation of 3,000 units of Penicillin through the drainage tube gave the best results. Posturing the patient, namely making him lie down in different positions for some hours, in big empyema cavities may help a better spread of Penicillin all over. Daily drainage and instillation may have to be done for 4 or 5 occasions as by that time, the empyema has cleared sufficiently to discard the tube. Penicillin in the pleural cavity does not cause any irritation, for were it any irritant there will be increase in effusion. No ill-effects were ever noted by the frequent instillation. Occasionally some patients complained of a little restlessness and pain in the chest after Penicillin instillation. Parenteral Penicillin is not effective in uncomplicated infected hæmothorax: but in those cases where there is markedly septic chest wound it has its uses. It has been the experience in forward areas that the cavities from which more than ten ounces of fluid are aspirated 60,000 units more are necessary; 30,000 units at a time being enough for small pockets.

In cases where gram-negative organisms were found, thorocotomy was absolutely essential. It was thought that this was due to a broncho-pleural fistula in a few cases.

A REVIEW OF SEVEN CASES OF PENETRATING WOUND—ABDOMEN

CAPT. V. GOVIND.

This review refers to the cases admitted to this hospital during the latter part of last year.

As stated, while reviewing the chest cases, these refer to such of those, who have survived laparotomy, and the complications that usually attend penetrating wounds of abdomen.

It is very *heartening* to note that all these cases had been resuscitated with blood and saline transfusions—sufficiently, as to undergo laparotomy within 24 hours after the injury.

Cases 1 and 2 are instances, where abdominal viscera were injured from the *perineum* due to grenade, bursting close by.

IN CASE 1, the missile had entered near the inner margin of the right buttock, shattered the coccyx, passed through the rectum, and injured the case of the bladder.

When the patient was first seen, the bladder was distended; but there is no mention of any blood per urethra, though there is mention of blood per rectum. According to the Field Medical Card a rubber catheter could not be passed down the urethra.

On exploration of the perineal wound, the coccyx had to be removed, because of its being badly fractured. As the injury to the rectum was apparent now, an exploratory laparotomy was done, when a medium sized foreign body was found lying loose in the pelvis, after having caused a through and through wound near the base of the bladder. The F. B. was removed, and the wound of the bladder was repaired, which I dare say must have been difficult. Lacerations of a portion of ilium, lying in the pelvis, was also repaired and the abdomen was closed after doing a *left pelvic*

Review of Seven Cases of

No. of case	Date of injury	Nature of injury	Signs and symptoms noted	Treatment adopted
1	19:00 hours 7-10-'44	Grenade wound. Right buttock and both legs.	Lots of flesh wounds in both the legs and right buttock. The entry wound right buttock tracts through the rectum and side of urethra. Bladder distended. Difficulty in passing a catheter noted. Blood in the rectum. Coccyx probably fractured (No data available). 14:30 hours on 8-10-'44. Laparotomy revealed: (1) Medium, F.B. loose in pelvis. (2) T. & T. wound bladder. (3) Laceration of ilium. (4) No injury to urethra detected.	14:30 hours, 8-10-'44. Gen. anaesthesia. (1) Coccyx-resected. (2) F. B. removed. (3) Bladder wounds—repaired. (4) Laceration of ilium sutured. (5) Bladder—relieved by suprapubic cystostomy. Malecot's catheter in bladder and ordinary catheter in urethra. (6) Left pelvic colostomy done. (7) The multiple wounds legs cleaned and dressed.
2	17:00 hours 14-10-'44	Shell wound. Right thigh and scrotum and buttock.	Through and through wound right thigh, right inguinal region involving the right side of testicle and lower third of rectum. Bladder not involved. Urine from bladder clear. For re-dressing, Pentothal on two occasions produced laryngeal spasms.	09:20 hours, 15-10-'44 General anaesthesia: Entry wound excised-dressed with Penicillin vas-gauze. 18 ozs. of clear urine withdrawn. Left inguinal colostomy performed.
3	13:25 hours 13-11-'44	Gun shot wound. Penetrating abdomen left side.	Penetrating wound near left costal margin. Loop of bowels prolapsed. General condition fair. Pulse 120. Blood pressure 100/70 m.m. Hg.	17:45 hours 13-11-'44. General anaesthesia. Laparotomy through left subumbilical paramedian incision. Wound seen on the jejunum 3" from duodeno-jejunal flexure. 8" of jejunum resected. One pint of blood transfused. Operation completed. 18-1-'44 another pint blood given. Gastric suction till 3rd Dec. with I.V. Saline on all these days. Lung symptoms developed.
4	17:30 hours 25-11-'44	Gun shot wound. Abdomen.	Patient required resuscitation. Wound on right iliac crest. Laparotomy at 22:30 hours showed haemoperitoneum. Fecal smell. Large hematoma in the ascending colon with small perforations.	19:30 hours, 25-11-'44. Slow drip transfusion one pint of blood. 22:30 hours. Under general anaesthesia caecostomy performed. Caecostomy tube tied to one of the perforations. Operation completed. Gastric suction instituted. Intravenous drip saline 4 bottles in 24 hours.

Penetrating Wound—Abdomen.

SURG. DIVN. 10 I.G.H.

Date of admission here	Condition on admission	Treatment rendered here	Present condition	Comments
13-12-'44	Leg wounds healed. Patient thin. General condition—good. Pelvic colostomy working satisfactorily.	10-1-'45. Enterotome applied which came off on 14-1-'45. 16-1-'45. Under general anaesthesia the colostomy was closed.	Patient looking fatter. Normal satisfactory. Bowel action once daily—regularly per rectum. A tiny leak. Operation wounds healed. Complaints of passing a little air, though no bubbles seen. No urinary complaints.	
30-11-'44	Wounds right buttock and scrotum healed satisfactorily. The inguinal colostomy working as expected. There is a wound on the left buttock in the line of the wounds of right buttock and scrotum. This is presumably the exit wound through which the F.B. passed away.	For the non-healing perineal wound a course of penicillin for 5 days given parentally. 4-1-'45. Under spinal anaesthesia the left iliac colostomy was closed. 8-2-'45. Proctoscopy and sigmoidoscopy done when a small wound seen near the anus. Otherwise N.A.D. rectum.	Patient well. Normal satisfactory. Bowel reaction—per rectum. Operated and the perineal wounds healed satisfactorily. Sigmoidoscopy N.A.D.	
24-1-'45	Wounds abdomen healed. Has had two incisions in abdominal wall.	Nothing done.	All wounds healed. Patient looks and feels well.	
21-4-'45	Patient weak and emaciated. Passes stools through normal passage. There is a fecal fistula in the right loin 2" from the ant. superior iliac spine communicating with the caecostomy.	13-2-'45. Under general anaesthesia the caecostomy was closed with 25,000 units of Penicillin in wound. Penicillin injections.	Patient has put on weight, and looks well after operation. The fecal fistula exists. Bowel action per rectum regular and satisfactory. Two wounds, inner tiny one, outer bigger one closed. The inner one which was not leaking any fecal matter leaks more after closing the outer.	May have to be taken up again.

Review of Seven Cases of

No. of case	Date of injury	Nature of injury	Signs and symptoms noted	Treatment adopted
5	13:30 hours 25-10-44	Mine wound Penetrating abdomen.	Patient required resuscitation. Signs & symptoms of intestinal perforation. General condition fair. Laparotomy 02:30 hrs. 26-10-44, revealed blood and faeces in peritoneal cavity. Eleven holes in small intestine. Laceration of left wall of rectum.	22:00 hours 25-10-44. One pint blood transfused. 02:30 hours 26-10-44. Under general anaesthesia. Laparotomy was done by a mid line incision, including entry wound. Eleven holes in small intestine sutured. The peritoneal cavity containing blood and faecal matter mopped out, cleaned. Resected 6" of small intestine and end to end anastomosis performed, and colostomy brought the operation to an end. Gastric suction & Penicillin course adopted.
6	18:00 hours 24-10-44	Shell wound abdomen, and right arm with compound fracture humerus.	Compound fracture Rt. Humerus, required resuscitation. Wound penetrating abdomen. Laparotomy 05:40 hours 25-10-44, showed wound in caecum with loose metallic foreign body in paracolic gutter. 1-11-44. Rupture abdomen. 30-11-44. Sub-scapular abscess.	24-10-44. Blood Transfusion Comp. Fr. Humerus attended P.O.P. 05:40 hours 25-10-44. Under Gen. Anaesth, laparotomy mid line incision, F.B. from paracolic gutter removed. Right ilia caecostomy performed. Trans fused one pint of blood and pin of plasma. Caecostomy no opened till 30th. 1-11-44. Rupture abdomen repaired with thick thread. 30-11-44. Sub-scapular abscess drained.
7	11:00 hours 30-11-44	Gun shot wound penetrating abdomen and right thigh.	Penetrating wound above the right great trochanter, tract piercing through blade of ilium and palpation revealed injury to caecum.	15:30 hours 30-11-44. Under Gen. Anaesthesia laparotomy by muscle-splitting incision was done. The two holes in caecum and five holes in the small intestine were sutured in two layers. Caecostomy performed, rubber tube stitched in caecum. Intra peritoneal rubber drain fixed. Operation completed. Gastric suction; intravenous drip, and Penicillin course instituted. Wound right thigh excised, toileted and dressed.

Penetrating Wound—Abdomen—Contd.

SURG. DIVN. 10 I.G.H.

Date of admission here	Condition on admission	Treatment rendered here	Present condition	Comments
30-11-'44	Patient fairly well. Two healing ulcers on the lower part of the laparotomy incision seen. Colostomy functioning satisfactorily.	13-1-'45. Entertome applied to spur, which came off on 21-1-'45. On 23-1-'45 under general anaesthesia the colostomy was closed. (Closure not satisfactory as the entertome was not very effective, presence of too much spouting mucous membrane.)	Patient looks and feels well. Wounds healed. Patient complains of colicky pain now and again. Bowel action good.	Probably a slight encroachment in the lumen of the colon; because the patient complains of colicky pain now and again. Colicky pain may have been due to the old anastomosis of peritoneal adhesions.
24-1-'45	Patient's general condition—Weak. Granulating ulcer on either side of right arm. Clinically non-union of the fracture right humerus present. Cecostomy functioning well. Weakness of abdominal wall present.	Fr. Humerus. P. O. P. in abduction. On 6-2-'45. Under General Anaesthesia the cecostomy opening in right ilia fossa closed. Weakness in abdominal wall repaired.	Patient looks well. Abdominal wounds healed. Bowel action satisfactory.	Very satisfactory closure.
24-1-'45	Patient's general condition weak. Patient dehydrated. Very semi-thin faecal matter. Good deal of oedema of the skin and sub-cutaneous tissue present.	Fomentation to the oedematous part. 10:00 hours on 20-2-'45. Under General Anaesthesia Operation:— Sinuses joined and made the two or three openings one. Made a very satisfactory closure of the cecostomy. Muscles were also brought into apposition. Penicillin course started.		

colostomy. Supra pubic drainage was also instituted by means of a Malecot's catheter. This man had certainly no injury to the urethra proper, as an attempt at passing a rubber catheter at the end of the operation was quite successful, though it failed at the beginning. At the time of admission to this hospital, nearly 2 months after the original injury, the supra-pubic wounds, and abdominal wounds had healed nicely, and the micturition normal, with the left colostomy functioning well. The colostomy wound was closed successfully here.

IN CASE 2, the entry of the missile was from front, damaging the right testicle and the lower part of rectum.

The track was excised. Right *orchidectomy* done and Penicillin Vaseline gauze was used for plugging the wound. There was no injury to the bladder. Left inguinal colostomy was performed.

Of these 7 cases, 3 came in with left iliac colostomies, and 3 came in with cæcostomies; and only one, for whom we had *not to do* anything.

It was case 3. He had a penetrating wound of abdomen, at the left costal margin, with a prolapse of a portion of *the gut*. 8 inches of jejunum had to be rejected, as it was badly bruised. To prevent distension of stomach, gastric section was instituted. But, why it was necessary from 13-11-1944, that is the date of operation till the 3rd December 1944, it is difficult for me to state; as there is no mention of any reason, for the necessity, for suction, for such a long period as mentioned in the old notes.

Case 5. This is an instance where the gross peritoneal soiling was tackled 13 hours after the injury and the patient recovered remarkably.

A detailed description of this case may be of interest.

This man sustained a penetrating wound, of lower abdomen in a mine accident, at 1-30 p.m. in the afternoon of 25-10-'44; at 10 p.m. that night, he had one pint of blood transferred, to resuscitate him; and at 2-30 a.m. in the early morning he had a laparotomy, by a mid-line incision. The entry wound was included in the incision, and excised. The peritoneal cavity was found *grossly fouled*, with blood and intestinal contents. After these were mopped out there were found 11 holes in a portion of the small intestine. 6 inches of the small bowel, which was injured, was rejected and *end to end* anastomosis done. As there was a small laceration of the wall of the rectum, the operation was completed after a colostomy. The colostomy wound was closed here in this hospital. Before repatriation to India, the patient complained of a colicky pain in the abdomen, coming on a few occasions during the day. No visible peristalsis was noted through the abdominal wall; and it was thought that this colicky pain may be due to peritoneal adhesions.

It was roughly 2 months by the time these patients reached this Hospital and, by the end of 3rd month, colostomy wounds were closed, and the patients were fit for discharge.

Cases 4, 6 and 7 are instances where, due to wounds in cæcum and ascending colon, cæcostomy had to be done.

The bypassing of the intestinal contents, through the cæcum, had led to a *good* deal of emaciation of the patients. There was also a marked infection of the skin and subcutaneous tissues.

These were the cases where we used Penicillin. This was how, it was used. A preliminary *debridement* of the wound was done, the wound was

enlarged, the muscle layers were identified and retracted. Edges of the opening, in the subperitoneal tissue, along with the opening in the bowel, identified and closed with two layers of stitches. Para-incisional stab wounds were made, through which tubes for Penicillin instillation were passed, and the original wound was closed. Penicillin was instilled twice a day for 3 to 5 days.

It is left to you, Gentlemen, to judge whether we were justified in the procedure we adopted. But, we have a feeling that Penicillin did contribute to an early healing of the wound. We must confess that we did no preliminary bacteriological examination of the discharge in the wound. The average period that elapsed from the time of injury, to the time of complete healing, of the repaired colostomy wound, was 3 months.

A REVIEW OF 14 CASES OF PENETRATING WOUNDS OF CHEST

LT. G. B. GHANEKA.

A review of fourteen cases of chest wounds is presented. These had been admitted to this hospital at the beginning of this year. It is not intended to be conveyed that these are the only cases of chest-injury admitted with this unit. Prior to this period there had been a few cases admitted and disposed of, but we never thought of collecting these cases and reviewing them.

These fourteen cases are those that survived the complications of chest injury, and other necessary operative interference as a part of treatment in forward areas. We have no data from which to draw any inference with respect to mortality rate.

All that we can say is that they were fairly fit at the time of discharge from the hospital except for a slight pleural thickening and obliteration of costo-phrenic angle in some cases, and a little haziness of lung markings. Only one case had intercostal neuralgia, and weakness of abdominal rectus on the affected side. The lungs have fully expanded in all cases and no respiratory distress on mild exertion nor cough was present.

Case No. 1 was one of a stab in the back-left-side leading to partial hæmo-pneumothorax with a good deal of distress in respiration; but curiously enough old notes definitely state that he had no mediastinal shift. 10 ozs. of blood were aspirated from the pleural cavity and Sulpho-thiazole was administered orally. Patient developed temp. and respiratory distress continued and a few days later 20 ozs. of blood were aspirated. There was discolouration of aspirated blood, and hence a suggestion of empyema developing.

A blood transfusion was given with Penicillin mixed in it. Condition not having improved, an intercostal drainage was instituted. Even this was ineffective and a rib resection had to be done. This was probably a case of clotted hæmothorax which improved only after removal of clot and drainage. The infecting organism was *St. Pyocyanus* which is a Penicillin-resistant and hence drainage had to be resorted to.

Six cases (2, 3, 4, 5, 6 and 13) had surgical emphysema. This was mild in all cases except in one case (Case No. 13) where the piece of shell which caused the wound had shattered the VIth left rib, leaving a sucking wound. Local excision of the wound, removal of F.B., and suture of the wound were done. The hæmothorax was aspirated on a few occasions and Penicillin

Review of 14 Cases

No.	Date of injury	Nature of injury	Signs and symptoms noted	Any resuscitation method adopted	Other surgical treatment adopted
1	20-5-'44	Stab in back	Partial Lt. pneumothorax. Distress during respiration. Not much of mediastinal shift.	None. 1 But put on S.I. List.	10 ozs. blood aspirated. Sulphothiazole orally. 28 ozs. blood aspirated on 30-5-'44. Pulse 106; Temp. 101° F. R. 26. B. P. 116/78. Loculated collection of pus formed. 22-6-'44 (i) blood transfusion with Penicillin. 15-7-'44 Intercostal drainage 7th space in effective. 7-8-'44 Resection rib.
2	3-11-'44	S. W. Chest wall right (close to spine).	Haemoptysis. Surgical Emphysema.	None.	8-11-'44 120 c.c. blood, Pen. instillation. 13-11-'44 suture wound—70 c.c. blood withdrawn. 17-11-'44 150 c.c. blood—30,000 Pen. instill. Sputum foul smelling. Left basal pneumonia 4-12-'44 150 c.c. thick pus B. subtilis. 3,000 units Penicillin. 10-12-'44 Only few c.c.s. Pus—sterile. 75,000 units Penicillin. 19-12-'44 F.B. extra-thoracic removed 50 c.c. thick reddish pus. 75,000 units Penicillin. 26-12-'44 Few c.c. Purulent blood. 75,000 units Penicillin.
3	9-5-'44	F.B. in lung covered by dense capsule.	No surgical emphysema. No Fr. rib. No haemothorax. No pneumothorax. No collapse of lung.	None.	28-9-'44 Started c/o pain in chest. 17-10-'44 Long incision 7th rib thoracotomy. Removal of F. B. from lung. 19-10-'44 3 ozs. blood removed from pleural cavity—otherwise uneventful recovery.
4	11-11-'44	Grenade wd. Axillary area. Rt.	Surgical Emphysema. Pneumothorax. Haemothorax. Mediastinal shift. No respiratory distress. No cough. No blood stained sputum. No injury lung. No Fr. rib.		11-11-'44 B. P. 110/90. Removal of F.B. Excision of wound. Aspiration of few ozs. of blood on three occasions. Patient alright on 5-2-'45.
5	9-10-'44	(i) Perf. wd. Right chest, entry 2" above and 2" lateral to nipple. Exit—> 8th space.	(i) Surgical emphysema 3 days later. (ii) Haemoptysis. Going on till 14-10-'44. (iii) Slight haemothorax.		12-10-'44 Paracentesis—> No fluid found. Penicillin 30,000 units. intrapleurally.
6	10-10-'44	S. W. (i) Rt. scapula. (ii) Rt. mid-axillary line.	(i) Surgical emphysema. (ii) Trachea to left. (iii) Dispnoea. (iv) Rt. partial pneumothorax. (v) Fr. 5th Rt. rib.		10-10-'44 27 ozs. blood aspirated right chest. 13-10-'44 6 ozs. dark red fluid. 15-10-'44 5 ozs. sero-sanguinous fluid. 17-10-'44 5 ozs. brown fluid. 19-10-'44 5 ozs. fluid. 21-10-'44 6 ozs. slightly yellow turbid fluid. *30-10-'44 Thoracotomy F. B. removed. Embedded 8th dorsal vertebra. 2-11-'44 10 ozs. sero-sanguinous fluid. 3-11-'44 Broncho-pneumonia left base.

of Chest Wounds.

Old X-ray findings	Present X-ray findings	Present condition	Comments
Haemo-pneumothorax. No mediastinal shift.	Lung fully expanded. Only thickened pleura at left base noted.	Wds. beautifully healed. Both sides expand equally.	(i) Intercostal drainage inefficient. (ii) Resection rib was better. (iii) St. Pyocyaneus, B. Pneumococci St. Aureus, found but did not delay progress. (iv) Resulting empyema from haemothorax. Probably only an empyema not an abscess of lung.
Diffuse opacity Rt. lower zone.	6-2-'45 Loss of translucency Rt. lower zone. Evidence of small amount of fluid obliterating costophrenic angle. Appearance of thickened pleura—post-traumatic and empyema.	9-2-'45 Exploratory puncture negative. Breath sounds diminished Rt. side.	(i) Haemothorax resulting in empyema. (ii) Inter-costal aspiration effective in this case. (iii) F.B. lying extra-thoracic (just) caused all the trouble. (iv) Though wounded on right side developed Lt. basal pneumonia. (v) Haemoptysis—symptom difficult to explain.
	Slight thickening of pleura. (i) Obliteration of costophrenic angle. (ii) A F.B. in Lt. 4th space though a F.B. has been removed from axillary area.	Wds. healed. Air entry—good Rt. side.	
11-10-'44 Slight haemothorax.		Recovered remarkably without any interference.	
13-10-'44 (i) Some atelectasis Rt. lung. (ii) Fr. 5th rib Rt. 22-10-'44 Small posterior basal effusion. 27-10-'44 Mediastinum central F.B. Antero-lateral aspect 8th thoracic vertebra.	5-2-44 Loss of translucency Rt. lower zone. Obliteration costo-phrenic angle. Thickened pleura. Suspicion of organized haemothorax. Some loss of bony tissue 8th rib. Mediastinum centrally. Two F. B's in P.A. view.	30-10-44 Lateral major thoracotomy. Complete closure and aspiration of all air from pleural cavity by A.P. set. (i) Inter costal neuralgia—probably nerve cut. (ii) Upper Rt. rectus slightly weaker than the left.	F. B. has gone below the pleural reflection and hence no lung symptoms.

Review of 14 Cases

Case No.	Date of injury	Nature of injury	Signs and symptoms noted	Any resuscitation method adopted	Other surgical treatment adopted
8	29-10-44	Two small wds. Lt. chest. Anteriorly.	1. Respiratory distress. 1. Hæmo-thorax.		29-10-44 Excision of wds. 30-10-44 Aspiration 140 c.c. blood Penicillin 15,000 units extrapleurally. 1-11-44 Aspiration 40 c.c. 15,000 units. 2-11-44 " 25 c.c. 15,000 units. 3-11-44 " 10 c.c. 15,000 units. 4-11-44 " 2 c.c. 15,000 units. 5-11-44 " 2 c.c. 15,000 units.
9	9-10-44	Pen wd. above Lt. nipple.	Respiratory distress. 13-10-44 Lt. hæmo-thorax.		9-10-44 Excision wound chest. Sulphathiazole 42 gms. 14-10-44 Aspiration 11 oz. blood. 50,000 units penicillin pleural cavity. 30-10-44 Chest wound extended 4th costal cartilage and medial portion 4th rib. Excessed F.B. removed intrapleurally. penicillin 15,000 units 8 hourly for 8 days. 18-11-44 Aspiration 18 c.c. turbid fluid.
10	29-11-44	S.W. Back Lt. (Thoraco-abdominal)	Hæmothorax. Fracture rib. 11th.	29-11-44 ⊙ i blood	29-11-44 Excision sucking wound left chest. Resection fracture rib. F.B. removed from costo-phrenic angle-stuck in diaphragm. Hæmo-thorax sucked dry. Wound closed-but for skin. 30-11-44 Aspiration 260 c.c. blood. 11-12-44 Partial re-excision old wound. Penicillin tube.
11	29-10-44	S.W. Pen above Lt. nipple.	(i) Respiratory distress. 31-10-44 (ii) Lt. hæmo-pneumothorax.	29-10-44 ⊙ ii blood	30-10-44 Excision of wound down to pleura 26,000 units penicillin intrapleurally. Pleural muscle sutured. 2-11-44 Aspiration—8th space post. 8 oz blood. 15,000 units penicillin intrapleurally. 10-11-44 15,000 units penicillin 3 hourly for 8 days. 16-11-44 Aspiration—only a few c. cs. sterile. 20-11-44 Secondary suture chest wound.
12	13-9-44	Small S.W. Lt. chest.	No symptoms till 10-10-44. 10-10-44 Acute pain chest Lt. Dyspnoea. Pleural rub 3rd and 4th space.		13-10-44 Left thoracotomy 9th rib resected. Pleural fluid clear. Bullet lying in a small fibrinous pocket against parietes. 1,800 c.c. of air decompression by negative pressure. 15-10-44 Aspiration above operation site—7 ozs. of blood stained fluid. 18-10-44 6 ozs. fluid. Post axillary line.
13	17-9-44	S.W. 7th rib Lt. scapular line. (sucking)	(i) Gross surgical emphysema. (ii) Fr. 6th left rib. (iii) Large Lt. pneumo-thorax. No mediastinal shift. No dyspnoea; No cyanosis.	17-9-44 ⊙ i blood	17-9-44 Excision sucking wound 7th rib and closure; (ii) F.B. removed from 1st intercostal space anteriorly. Needle in 2nd space—no positive pressure. 26-9-44 Aspiration—12 ozs. brown sero-sanguinous fluid—Left base, sterile. 26-9-44 Re-excision of both wounds. Penicillin.
14	27-9-44	(i) Pen wd. Rt. thoraco-abdominal. (ii) Pen S.W. back.			27-9-44 Wound right lower chest horizontal incision opened. Peritoneum & diaphragm sutured. 30,000 units Penicillin in pleural cavity. Muscle sutured, skin left open. F.B. in liver or lung? 29-9-44 Aspirated 6 ozs. blood. 50,000 units in pleural cavity.

of Chest Wounds—Contd.

Old X-ray findings	Present X-ray findings	Present conditions	Comments
11-11-44 Lt. diffuse opacity running from Lt. costo-phrenic angle laterally upwards to apex. Lung tissue in middle zone gives an impression of consolidation. Two small F.B.s in middle zone. Loculated pleural effusion?		Good air entry.	
16-10-44 Left basal effusion. 24-10-44 Mediastinum to rt. Left pneumo-thorax. Large F.B. 8th T. V. 25-10-44 F.B. deep to sternum at level of 4th costal cartilage. 10-11-44 Mediastinal shift-right. Loculated fluid.	2-2-45 Thick chest pleura.	Good air entry.	A case of pleural irritation.
10-12-44 Trachea central. Lt. lower lobe collapse.	3-2-45 No abnormality detected in lung field.	Good air entry.	Had hæmaturia—laceration kidney.
9-11-44 Lt. basal effusion. 14-11-44 Some clearing Pt. base. No F.B. seen. 28-11-44 Further clearing Lt. base. 3-12-44 Small Lt. basal. pleural reaction remains.	4-3-45 Loss of translucency Lt. lower zone. Evidence of organized hæmatoma. No F.B. seen.	Good air entry.	
11-10-44 Bullet lying across 8th rib. Lt. side. 13-10-44 Bullet lies over 11th Lt. rib 7 c.m.s. from mid-line. It has rotated in its fall. 17-10-44 Small basal effusion. 21-10-44 Lt. lower lobe collapse—hæmatoma?	10-12-44 Lungs—N.A.D. 9th rib Lt. side is shown Resected.		Bullet was in pleural cavity.
19-9-44 Large Lt. pneumo-thorax. (ii) Fr. 6th rib. 25-9-44 Lt. lung expanding with shallow hæmo-pneumothorax. Atelectasis Lt. lower lobe. 29-9-44 Medium effusion. 15-10-44 Lt. lower lobe collapsed. Basal effusion to 7th rib in axillary line. 2-11-44 Lower lobe expanding. Fluid still present.	17-12-44 Appearance of healed Fr. 2nd Lt. rib anteriorly and 6th rib posteriorly. Obliteration of costo-phrenic angle—slight fluid—organised clot? No abnormality in the lung.	Good air entry.	
	23-12-44. Obliteration of Rt. costo-phrenic angle. Appearance of thickened pleura. (ii) Medium F.B. lying superficially in Rt. abdominal wall. (iii) Medium F.B. lying 9.5 c.m. Ant to body 1st L.V. in lateral view.	Good air entry.	

instilled. Nothing more was done and the pt. had an uneventful recovery. This case is an instance where hæmothorax being of the fluid type had responded to simple aspiration and instillation of Penicillin done. Case No. 8 is also an instance where hæmothorax was of the fluid type which had responded to aspiration and instillation of Penicillin. Two small F. Bs. embedded in the lung did not cause any trouble and were left alone. The lung had fully expanded and good air entry was present on both sides.

Cases 7, 10 and 14 had thoraco-abdominal wounds. Case No. 7 was interesting in that the F.B. entered in the 9th left space and lodged itself in peri-renal tissue without leading to signs or symptoms.

In Case No. 10 the F.B. was stuck in diaphragm which was removed through the thoracotomy wound and Penicillin instilled in pleural cavity after aspiration obviated sepsis, but in Case No. 14 the F.B. is lost somewhere in the depth of the wound. No rib resection was done. The wound was opened with a rib spreader and exploration was done with a negative result. The blood that had accumulated in the pleural cavity was aspirated and Penicillin instilled only on two occasions.

Case No. 9 is an instance where Penicillin was administered both intra-pleurally and parenterally; the former to obviate sepsis in pleural cavity and the latter to obviate sepsis in chest wall after a portion of 4th rib and costal cartilage had been excised.

Indian Village Obstetric Emergencies

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(Continued from page 133 of March issue).

Chapter XIX. Operative-Delivery

I. 1. Always bear in mind the difference between spontaneous and artificial delivery.

In spontaneous delivery the foetal body is compressed evenly from all sides except the cervix. As the uterus contracts it drives the child regularly and evenly, caudally, at the same time retraction of the uterus withdraws the lower uterine segment, the bladder and the broad ligaments out of pelvis and leaves an almost empty bony canal for the passage of the infant.

In artificial delivery traction is exerted from below on some part of the child and the composition of the foetus broken up so that some portions are held back by the soft parts of the mother and at the same time the maternal soft parts tend to be dragged down into the pelvis.

Traction must therefore only be exerted during contractions of the uterus unless there is some good reason to the contrary.

2. A general anaesthetic is usually desirable and often essential where the uterus is in vigorous action. Vinesthene ampoules (M. & B.) are handy. Where the uterine contractions are poor or absent pudendal nerve block (see Chapter XVI (I) (4)) is ideal.

3. The foetal mortality depends almost entirely upon the smooth and unhurried delivery of the head. This is especially so in breech presentations

since the foetus is capable of surviving and recovering from 10 to 15 minutes deprivation of oxygen but not from intracranial injuries.

4. See Chapter III (17.).

II. In cephalic presentations dystocia due to the shoulders.—If after the delivery of the head the shoulders fail to follow even when gentle traction is applied to the head you must make an examination with four fingers to discover which of the following conditions are present:—(a) Post-mature child with broad shoulders; (b) Normal shoulders but pelvis contracted; (c) Anterior shoulders caught up on pubic raums; (d) Shoulders has overrotated into opposite diameter of pelvis; (e) Cord too short. (If it can be reached cut it with scissors); (f) Anasarca or tumour of the chest (perform embryotomy); (g) Locked twins (see); and (h) Monstrosity (perform embryotomy).

Children have been lost at this stage of delivery and uteri ruptured by excited medical attendants and midwives pulling on the head. You should insert a catheter into the child's trachea and fill its lungs with air. You will thus gain time for unhurried work.

Strongly flex the mother's thighs and if she is conscious tell her to bear down with each uterine contraction. Introduce two fingers behind the pubes and into the anterior axilla of the infant. In the interval between two contractions lubricate the parts and rotate the shoulders into one of the oblique diameters. Coincident with the next contraction exert traction of the axilla combined with suprapubic pressure. If you fail to move the anterior shoulder insert a hand along the back of the infant, hook your index finger into the posterior axilla and endeavour to rotate and draw down the posterior shoulder. If this fails insert a finger tip in the cubital fossa of the posterior arm and draw it down across the infant's face. When the posterior shoulder descends you must either press it back against the perineal body in order to be able to draw the anterior shoulder under the pubic arch, or you must draw down the posterior arm across the infant's face and thus deliver the posterior shoulders. The anterior arm may be drawn down if necessary. Where the perineum is rigid these manoeuvres are impossible without an episiotomy.

Where finger traction fails try the blunt hook introduced into an axilla as described for a groin to aid rotation and delivery, but beware of damaging both the patients. When all fail or the child is dead perform cleidotomy, perforation of the chest, evisceration etc.

III. Manual aid in breech delivery.—[which must not be confused with extraction see Chapter XVIII (VI) (2) (u)]

1. (a) In the majority of breech labours no interference is required. Unnecessary traction upon the foetus may result in extension of the arms above the head, nuchal position of an arm, the head becoming incarcerated in an incompletely dilated cervix or posterior rotation of the occiput.

(b) You must however have everything ready for episiotomy, blunt hook traction, forceps delivery, resuscitation of the child and repair of lacerations.

(c) Remember that the foetal breech lies in one of the oblique diameters of the mother's pelvis and that internal rotation must take place to bring the anterior hip under the pubic arch. A similar state of affairs exists for the shoulders and for the head (exceptions exist in osteomalacic and ricketic pelvis or in occasional developmentally defective pelvis.)

(d) When there is undue delay gentle moderate fundal pressure, applied, during a uterine contraction so as to depress the child's brow and draw up its occiput, will aid flexion and possibly prevent the arms becoming extended above the infant's head.

Such fundal pressure may at times interfere with and obstruct manipulative procedures other than traction and so must be controlled.

(e) Deep anaesthesia to a surgical degree is usually only desirable when the uterus is contracting or in spasm. It is more important as a rule to perform an operation at the right time than to wait for an anaesthetist. When the uterine contractions are poor or are absent pudendal nerve block (see Chapter XVI (I) (4) is superior to other anaesthetics.

2. *Arrested breech*:—The breech may be arrested (a) above the pelvic brim, (b) in the pelvic cavity, (c) on the pelvic floor. The causes are (i) disproportion, (ii) weak uterine action, (iii) tumours in the mother's pelvis or of the foetus and, (iv) especially in a primipara, a tight vulval ring, in the presence of slight disproportion and/or unsatisfactory uterine contractions together with extended legs, will aid in holding up the breech on the perineum.

A breech arrested above the pelvic brim should, if at all possible, be sent to hospital. Failing a hospital draw out the anterior ampoule (see B. below).

3. *A. When to employ digital traction to the foetal groin?*—In the 2nd stage of labour when the external "os" is retracted above the breech and (a) There is uterine inertia or the contractions have failed in 2 hours to produce any progress, (b) When the breech has been held up for half an hour on the perineum and uterine contractions are feeble.

B. How to apply digital traction?—(i) Patient in the lithotomy posture.

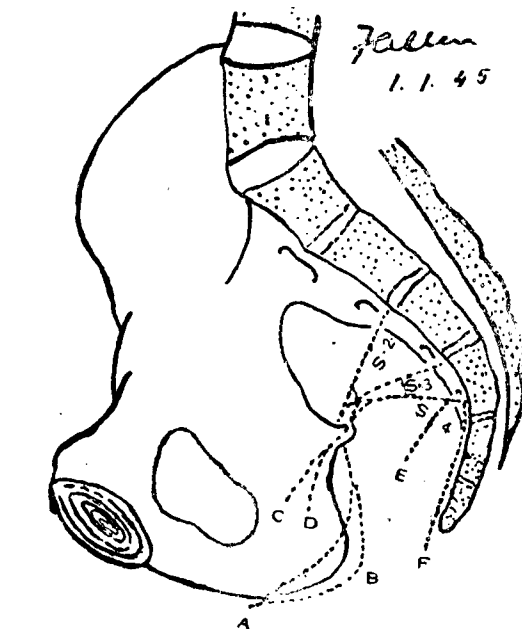
(ii) Usual preparations.

(iii) Pudendal nerve block anaesthesia [see Chapter XVI, (I) 4], vinesthene, nitrous oxide or *very light* chloroform only.

(iv) Where the perineum is at all rigid perform episiotomy. This may obviate the necessity for digital or other traction.

(v) Lubricate both hands.

(vi) Separate the labia widely.



A—Pudendal nerve (S. 2, 3 and 4).
B—Nerve to sphincter ani extern. inferior haemorrhoidal nerve (S. 4).
C—Visceral branches to vagina etc. (S. 2, 3 and 4).
D—Nerve to lavator ani (S. 4).
E—Nerve to coecygeas (S. 4).
F—Anococcygeal nerve (S. 4 & 5 & C. 1).

Section of female pelvis to show nerve supply of perineum and vagina.

(Adapted from Pauchet and Dupret etc.)

(vii) Remember that the foetal bitrochanteric diameter enters the mother's pelvis through one or other of the oblique diameters and before

internal rotation can take place into the A.P. the breech must reach the pelvic floor.

(viii) Introduce one of your index fingers behind the pubes of the patient until you can hook it over the anterior groin of the child.

(ix) If you are unsuccessful try again working up the hollow of the mother's sacrum to reach the child's posterior groin.

(x) Having got your finger over a groin use the thumb of the same hand to steady the child's buttock and endeavour to make the tip of your thumb and index fingers meet over the groin.

(xi) If you can get your other index finger over the other groin do so. otherwise grip the wrist of your engaged hand in your disengaged hand.

(xii) Exert traction downwards and backwards in the long axis of the birth canal aided by fundal pressure.

(xiii) This is a tiring procedure, so make traction coincide with any existing contractions of the uterus and rest during the intervals. When contractions are absent traction may stimulate them.

(xiv) As soon as the breech comes low enough, introduce your other index finger over the other foetal groin and when the anterior buttock emerges under the pubic arch change the direction of the pull forwards.

(xv) When the breech commences to advance unaided cease pulling.

(xvi) In case of failure suspect disproportion, tumours or cysts in the patient's pelvis, or ascites or tumours in the infant.

4. *A. When to draw out an ankle?*—In the 1st stage of labour when the membranes have ruptured and 2 hours have elapsed without any progress.

In the 2nd stage (a) when the uterus has been acting strongly for 2 hours without being able to advance the breech (disproportion or tumour): (b) when finger traction has failed.

[There are 2 exceptions:—(i) where the disproportion exists only at the vulval ring, which is too tight and holds the breech on the perineum, episiotomy and finger traction in the groin will suffice in most cases. (ii) Where there is a tumour or cyst in the mother's pelvis, foetal ascites or a tumour in the child's abdomen or sacrum or gross disproportion embryotomy is called for without delay.]

B. How to draw out an ankle?—(i) Inject I.M. 0.5 c.c. 1 in 1000 adrenaline chloride solution and hypodermically 1/33 grain (2 mg.) atropine into the patient and place her in the left or right Sims' (semi-prone) posture (where you know the legs are not extended, that the breech is not wedged into the pelvis and you have a competent anaesthetist you may use the dorsal lithotomy posture and omit the atropine).

(ii) Manipulations may only be carried out in the intervals between the uterine contractions. During the contractions the internal hand must remain at rest.

(iii) Prepare the patient and yourself according to the proper ritual.

(iv) If you possess elbow length gloves draw them on.

(v) Visualise the exact position of the foetal breech and limbs *vis-a-vis* the mother's pelvis and decide which hand will be more convenient

for you to insert into the vagina. (You can always change hands later necessary).

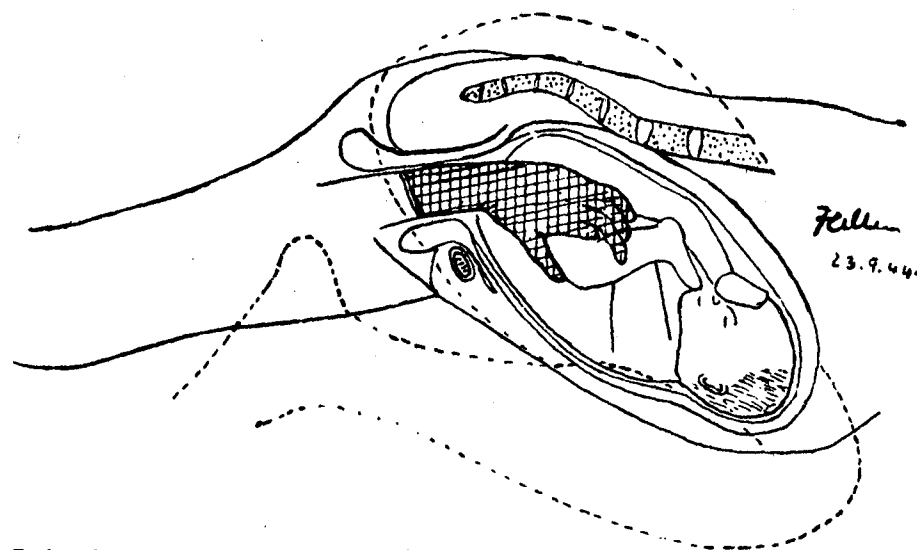
(vi) If an anæsthetic is available the patient should be under by now.

(vii) Lubricate, from finger tips to elbow, the hand you intend to introduce into the vagina.

(viii) With your other hand separate the labia widely but if the perineum is very rigid perform an episiotomy first.

(ix) Introduce your finger tips into the vagina and direct then

IMPACTED BREECH WITH EXTENDED LEGS



Patient in left Sims' Posture. Pinard's manoeuvre to bring an ankle within reach.

towards the sacro-iliac synchondrosis to which the abdomen of the child is pointing or if the breech is on the perineum between the foetal thighs. (Support the fundus of the uterus with your external hand if the patient is in the dorsal lithotomy posture). Wait while any uterine contractions or expulsive efforts die down.

(x) Where the breech is high your finger tips will probably have to be passed through the external "os."

Where the legs are flexed and the breech not jammed too tightly into the pelvis, as you pass your finger tips along the ventral surface of the child's breech, you will feel one or both feet.

It may be necessary for you to push up the infant's breech in order to advance your fingers past it.

Where you can differentiate the feet, seize and draw down the ankle of the anterior leg in such a manner that the thigh is abducted across the child's abdomen.

Where the legs of the child are extended advance your finger tips along the medial aspect of its anterior thigh until you reach the popliteal space.

Your object now is to press with the tips of one or two fingers on the medial border of the popliteal space away from the mid line of the fetus to

abduct the thigh and flex the knee which will bring the leg nearer and possibly within reach of your other finger tips which remain extended.

If you feel the leg with your finger tips or if the heel comes down on to the dorsum of your hand secure a hold on it but you may have to advance your finger tips further towards the fundus for this purpose.

You now wish to place the two maleolic or the heel and in step between the tips of your index and middle fingers and thus draw down the ankle until your thumb can obtain a purchase.

Work your fingers along to the ankle, do not attempt to pull down the leg except by a hold on the ankle. Draw the ankle across the ventral surface of the infant towards the other thigh and thus downwards until it is outside the vulva.

When the uterus is closely retracted round the child or when the breech is wedged into the pelvis you will have to anæsthetise the patient deeply using chloroform and pass your internal finger tips right up to the fundus of the uterus to secure the anterior ankle or push back the breech to allow room for your hand. In doing this draw one or both of the foetal arms down by its side to obviate subsequent extension of the arms above the head.

Where all the above fail use the blunt hook or perform embryotomy.

You may have to bring out a second ankle where (a) you happen to have brought out the ankle of the posterior leg and the anterior hip has become caught up on the pubis of the mother, or (b) where the second ankle has become wedged across the mother's pelvis.

Having drawn out the child's ankle or ankles leave the rest of the delivery to nature unless there is failure to make progress after the return of good uterine contractions.

5. *When to use the blunt hook?* —When digital traction fails. When it is impossible to bring out an ankle.

How to use the blunt hook? —The blunt hook is capable of causing serious damage to the soft parts of the mother as well as to the child but if used with care and intelligence and provided the curve of the hook has a diameter of 2 inches (5 cms.) only a little bruising should result.

See that the point and bend of the instrument are ensheathed in rubber tubing.

Lubricate your left hand and the point and curve of the hook.

Bear in mind that the anterior foetal groin may lie to right or left of the mother's symphysis pubis therefore, investigate the presentation carefully.

Introduce the index and middle finger tips of your left hand behind the mother's pubis.

Guided and guarded by these finger tips introduce the hook with the point turned to the right or left and advance it until you can turn the point towards the child's abdomen above the fold of its groin.

Snug the bend of the hook into the fold of the groin.

Withdraw your finger tips slightly until you can pass them between the thighs of the child.

Feel for the point of the hook and adjust the point of the hook so that it will not press on the genitalia or thigh of the child.

Exert traction coincident with contractions of the uterus aided by fundal pressure in the axis of the pelvic canal until the breech commences to advance easily and it appears that the uterus alone will be able to maintain progress.

6. *Forceps on the breech.*—Traction by means of forceps on the breech is less efficient than by means of a blunt hook in the groin but where you lack a blunt hook apply the forceps with the fenestræ over each trochanter of the fœtus and the tips of the blades at the crests of the ilium.

Where the breech is high use axis traction attachment but beware of the forceps slipping and doing great damage to the maternal soft parts.

Remember that the breech will be lying across one of the oblique diameters of the pelvis and that rotation of the anterior hip towards the pubic arch must take place as the breech descends to the pelvic floor.

7. *When to pull upon a leg or thigh which is out?*—Never if you can avoid it.

Delay must be due to: (a) an incompletely dilated external "os," which can best be dilated by uterine action possibly aided by very light weight traction on a cord over the foot of the bed plus a hypodermic of 1/4th grain (10 mg.) Morphine or 100 mg. Pethidine for the mother. (b) A fœtal tumour, which demands embryotomy. (c) The infant's other ankle being wedged across the mother's pelvis, the treatment for which is to bring out the other ankle. (d) Where the posterior ankle is down the anterior hip may be caught up on the mother's pubis. The treatment for which is to bring out the anterior ankle.

Rarely even strong uterine action fails to produce any advance after several hours' trial aided by light weight traction.

In such a case wrap a warm sterile towel round the exposed leg or legs.

Place your thumbs on the limb parallel to its long axis and your fingers round the limb distributed evenly over the available surface.

Aided by fundal pressure and coincident with uterine contractions pull dorsally in the axis of the pelvic inlet.

Where you are pulling on the posterior leg, because it alone is out, be careful to aid rotation of the thigh to the front clockwise or anti-clockwise according to the way nature is trying to indicate.

When the crest of the infant's ilium appears under the mother's pubis the anterior hip is delivered.

When to deliver the posterior hip?—When the anterior hip has been delivered and the posterior hip fails to be delivered as a result of several uterine contractions—

Hold the anterior thigh firmly and evenly in one hand and raise it towards the mother's abdomen.

Introduce the tip of the index finger of your other hand up the infant's back and along its iliac crest and thus into the fold of the posterior groin.

Coincident with a uterine contraction pull and lift gently and evenly which will bring the posterior hip over the perineum.

9. *Aid delivery of the breech to the shoulders when progress is held up.* Wrap a sterile towel round the exposed portion of the child.

Place both of your thumbs over the dorsum of the infant's sacrum and your fingers evenly over the front of its pelvis and thighs.

Endeavour to understand and follow the mechanism which nature is trying to carry out. Remember that the bisacromial diameter has to pass through one of the oblique diameters of the pelvic brim.

Where necessary rotate, while slightly pushing up the child by the shortest route, until the fœtal sacrum lies below the fold of one of the mother's groins.

Exert gentle even traction, aided by fundal pressure and coincident with uterine contractions, dorsally in the axis of the pelvic inlet until the lower half of one scapular and the axilla come into view well under the mother's pubes. (Where more than ordinary resistance is encountered suspect a fœtal tumour and introduce a couple of finger tips along the child's body to investigate.)

Where the uterus fails to take up the work of expulsion unaided, change your hold on the infant so that your thumbs are along its spine and your fingers encircle the ribs.

Rotate, while slightly pushing upwards, the child by the shortest route until one shoulder is posterior.

10. *When to deliver the arms:*—If you desire to avoid great difficulty not before the lower halves of the scapulæ are outside the vulva and one of the axillæ becomes visible and the uterus has failed to deliver the shoulders unaided.

How to deliver the arms.—Wrap a warm sterile towel round the trunk and legs of the fœtus.

Grasp the legs of the fœtus and raise them over the groin of the mother corresponding to the ventral surface of the child.

Where the perineum is rigid perform an episiotomy.

Where the posterior shoulder followed by the arm and hand fails to slip out over the perineum introduce your finger tips along the child's sternum and feel for the arms. Where they are folded across the chest hook a finger into each elbow in turn and pull it down.

If you fail to find them see below.

Depress the body of the child to bring the anterior shoulder from under the pubes.

When this has occurred the back of the fœtus should rotate so that it is directed more or less towards the mother's pubes. If it fails to do so rotate the body gently. (See below.)

Where the arms are extended you will fail to find them on the ventral surface of the child, so withdraw your fingers.

Continue to hold the child's legs up over the mother's groin or hand the legs to an attendant.

Introduce the finger tips of your hand corresponding to the arm to be brought down i.e., left hand for left arm along the posterior flank of the fœtus, advance them over the scapular and along the lateral aspect of the arm until you can insert one finger tip in the cubital fossa. You may have to push the shoulder up a little in order to obtain room.

Using your fingers as splints around the arm press the child's elbow downwards across its face towards its opposite flank.

Where you fail to reach the posterior elbow depress but do not pull on the body of the infant (indeed you may have to push it up) towards the mother's sacrum and then introduce the tips of your fingers to search for the anterior elbow in a similar manner.

Having drawn down the posterior or (rarely) anterior arm the other arm must be brought down in a similar manner. In order to effect this you may have to rotate the body of the infant, anti-clockwise if the right arm is still extended or clockwise if the left arm is extended, to the posterior or (rarely) anterior position.

Where there is dorsal displacement of an arm in the nuchal position the forearm may catch on the brim of the mother's pelvis during descent. In such an event push the trunk up a little and for a right arm rotate the infant anti-clockwise, for a left arm rotate it clockwise towards and past the mother's sacrum with the idea that the promontory may catch and straighten out the arm.

Having got the dorsally displaced arm past the mother's sacrum it must be brought down as described above. If that fails you will have to pull down the dorsally displaced arm by hooking a finger over it which will break the humerus or the clavicle. Be sure to treat such a fracture properly or send child to someone competent.

11. *When to deliver the after-coming head*:—When the contractions of the uterus and of the mother's abdominal musculature fail to expel the head in spite of, where necessary, being aided by gentle fundal pressure directed on the foetal sinciput or brow to keep it flexed. (When the child is dead you have ample time to give nature a chance before resorting to craniotomy. But, since much blood may accumulate behind the head do not delay too long.)

A. (1) *How to deliver the after coming head when the infant's back is to the mother's front*: Remember (a) That the head may be arrested: (i) with the parietal bossess above the pelvic brim; (ii) in the cavity of the pelvis; (iii) on the perineum.

(b) That the full term foetal head passes the pelvic brim with the infant's mouth in one or other oblique diameter, chin posterior opposite a maternal sacro-iliac synchondrosis and does not rotate into the "A.P." until the parietal bossess are below the brim.

(c) An attendant must be standing ready beside the patient to aid with fundal pressure.

(2) In those rare cases where the head is arrested with the parietal bossess still above the pelvic brim or high in the pelvis, allow the body of the child to hang down or draw the body gently dorsally and caudally to flex the head and bring the base of the skull against the mother's pubis.

(3) Order the attendant to push firmly on the child's sinciput or brow in order to flex the head and cause the parietal bossess to pass through the brim into the pelvis.

(4) Count at least upto 100 to ensure that adequate time is given to the foetal head for its entry into the pelvis.

(m) Where the mother can be placed in the dorsal lithotomy posture on a bed or table and the infant is alive:

(a) Introduce one supinated hand, usually the left is employed, fingers extended along the ventral surface of the infant *i.e.*, palmar surface towards child's abdomen.

(b) Advance your hand until you can place the tips of your index and middle finger on each side of the infant's nose in the canine fossae of the maxilla.

(c) Spread the remaining fingers and palm of that hand over the child's chest. Have the lower part of the infant's abdomen and its pubes astride your wrist with one of its legs hanging down on each side. Hook the thumb and ring finger of your other hand over each side of the child's neck from the dorsum of the child but keeping your index and middle fingers extended as splints to the occiput.

(d) Your objects are (i) to maintain flexion of the head on the trunk; (ii) to maintain fixation of the head on the trunk; (iii) to permit internal rotation to take place when the head is high; (iv) to ease the head through the pelvis and *vulva* by intermittent traction.

An attendant must apply, gently, supra pubic fundal pressure in the region of the foetal brow or sinciput. With your two fingers hooked over the child's shoulders draw it as much towards the mother's dorsum *i.e.*, coccyx, as her perineal body will permit while the other two fingers in the canine fossae maintain flexion.

(e) If the head fails to advance transfer your two finger tips from the child's canine fossae into its mouth and place them as far back as possible on each ramus of the mandible. You can now supplement shoulder traction with jaw traction.

(f) As the head advances permit or aid internal rotation where required.

(n) Where the mother is on the floor or the foetus dead:—(a) Take the child by the two ankles, order the attendant to maintain fundal pressure on the infant's brow, exert slight traction on the child's legs and keep up this slight traction as you carry the legs and body of the child round the circumference of the circle over the mother's pubic region towards her abdomen.

(5) Do not draw the infant's trunk round towards the mother's abdomen until the base of the skull is well down under the symphysis pubis, but when it does arrive there roll the base of the skull forward around and under the pubic arch.

(6) Do not extract the head rapidly through the vulvar ring and if the ring is tight make an episiotomy.

(7) You will kill the child and possibly the mother if you drag out any part of the child precipitately and by force. If therefore you are unable to aid delivery deliberately, evenly, steadily and gently without excitement the perforator and the cranioclast will be no less inhuman.

(8) The infant's head will do one of three things. (a) Roll out; (b) Remain low in the pelvic cavity or on the pelvic floor see (B) below; (c) the parietal bossess will fail to enter the pelvis or remain high in the pelvis, the child will die and you should perforate the head and if necessary crush it.

B. *Where the head is low in the pelvic cavity or on the pelvic floor*:

(1) Allow the body of the child to hang down or draw the body gently downwards and backwards (in line with the mother's anus) to bring the base of skull against the pubis ramus of the mother.

(2) Order the attendant to press firmly on the child's brow or sinciput. Count upto 100.

(3) (a) Where the mother can be placed in the dorsal lithotomy posture on a bed or table and the infant is alive employ the method for delivery of head described in (A) (4) (m) above. (b) Where the mother is on the floor or the foetus is dead take the child by the ankles, maintain slight traction and at the same time draw the child's legs and trunk forward over the mother's pubic region towards her abdomen.

(4) If the infant's head fails to roll out :—Hand the legs of the infant to an attendant standing beside the patient and tell the attendant to keep the child's body up out of the way. With your left hand draw back the mother's perineum, mop away the blood, keep the perineum retracted or make an episiotomy and the child will be able to breathe provided you maintain retraction of the perineum and keep the child's mouth free of blood using your left hand. After the episiotomy the head may slip out, if not :

(5) In your right hand pick up the handle of the *left* branch of the obstetric forceps.

(6) Introduce the tip of the left blade between the left side of the mother's vagina and the infant's head along the mento-occipital diameter (from the chin to the occiput). Slip the lock under your left hand, which is retracting the perineum.

(7) Pick up the handle of the right branch of the obstetric forceps and introduce the tip of the blade between the right side of the mother's vagina and the infant's head until the blade lies along the mento-occipital diameter.

(8) Withdraw your left hand. Articulate the locks of the obstetric forceps. Retract the perineum again with your left hand.

(9) Gently and *without hurry* draw the head down and then forwards towards the mother's abdomen thus making the base of the child's skull rotate from under the mother's pubic arch. [See Chapter XX, (XV)].

12. *Delivery of the head with the face anterior* :—(As soon as the child is dead the head, unless it can be easily rotated, must be perforated and, if necessary crushed to avoid a serious perineal tear).

Where the arms have become extended you must first free them by passing one of your hands upwards between the back of the infant and the sacrum of the mother until you can work your finger tips over one shoulder and along the arm to the elbow. Sweep the forearm down across the infant's chest and then repeat the manœuvre for the other arm. Where there is insufficient room at the back of the child try introducing your finger tips behind the mother's pubes. Where the arms and head are jammed into the pelvic brim you will have to push the child upwards to gain sufficient room. When the arms are down if the head is flexed insinuate your index and middle fingers behind the mother's pubes. When you reach infant's anterior malar bone push it round in the direction of the child's mouth and at the same time with your other hand on the mother's abdomen pull round the infant's occiput. Or, if the head is extended with your finger tips introduced along the mother's sacrum you may be able to pull the infant's occiput to the front while your other hand on the mother's abdomen pushes the child's chin round towards its mouth.

Or, you may even be able to insinuate your finger tips along the infant's occiput and work them along the posterior cheek until you can hook one into the mouth and pull the face towards the rear.

Where the above succeed deliver as described in (II) above.

Where the above fail the cranium must be perforated through the roof of the infant's mouth and extraction completed by the aid of the obstetric forceps or after crushing the head.

(To be continued).

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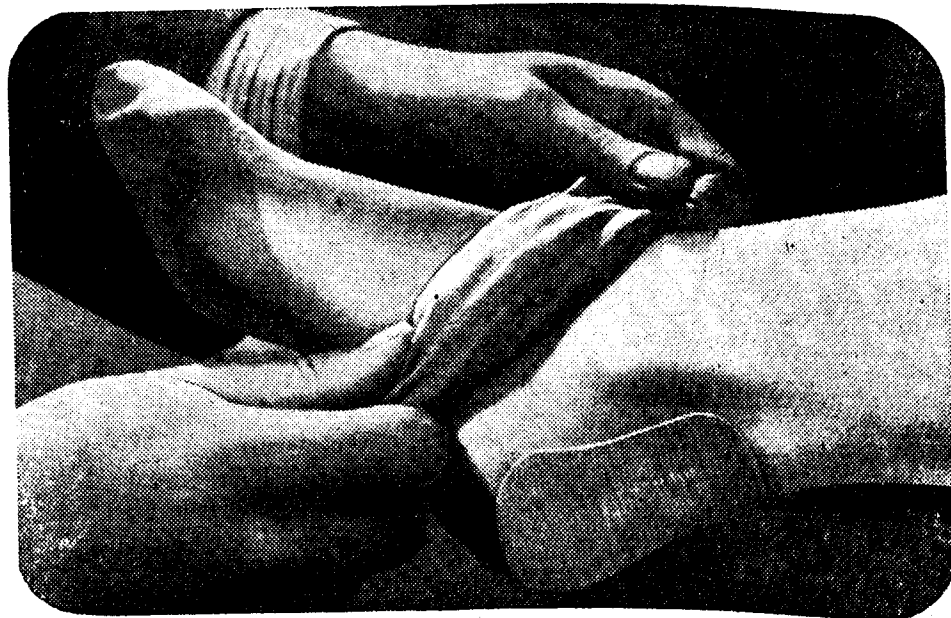
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Penicillin Therapy in Ocular Infections*

DR. K. KRISHNAMURTY.

Chodavaram.

PENICILLIN, the latest chemo-therapeutic drug discovered by FLOREY of international repute, was found to be the best drug in ocular infections. Penicillin is superior to Sulphonamides in that it is effective in the presence of pus, secretion and organisms and it does not inhibit the growth of corneal epithelial cells nor promote vascularisation and scarring of the cornea. Encouraging results were already reported about the various uses of the drug in acute and chronic conditions of the eye, especially, acute and chronic conjunctivitis, sinus-thrombosis, orbital and facial cellulitis, blepharitis, gonorrhoeal conjunctivitis, ulcer cornea. Failures were noted in exudative choroiditis and irido-cyclitis.

Mode of administration.—*Parenterally or locally*:—Oral administration is ineffective since the drug is destroyed by gastric juice. Frequent intramuscular injections of ten thousand units of penicillin every three hours is generally the most safest method. The dosage varies with the infective cocci. For gonococci, one lakh units of penicillin is enough. For pneumococci about one lakh fifty thousands units, for streptococci, about two lakh units and for staphylococci about three to four lakhs units are necessary. Continuous intravenous drip is indicated with less dose, but diluted with large amounts of Saline or Glucose in case of severe infections. Subcutaneous method is least preferable. The concentration of penicillin was found to be in the following order when given through systemic route—extra-ocular muscles, sclera, conjunctiva, blood, choro-retinal layer and the aqueous humour. The penicillin content of the vitreous and cornea, was less than 2 Oxford units per gram of the tissue. In the lens it was negative. At the end of one hour after injection of penicillin, very little of penicillin is noted either in the cornea, vitreous, lens, choroid, sclera, conjunctiva etc.

Local application of penicillin.—Experiments were conducted by applying penicillin locally, and the concentration of the drug in the various tissues were noted. Drops, powders, ointments were applied and seen. Solutions had to be applied too frequently to get the required action. Powdered penicillin, though effective, is found to be irritating to the tissues. An ointment is by far superior to drops of powder, as it would be less affected by tears and required less frequent application. FLOREY and FLOREY found very satisfactory results with an ointment base. Grease base, oil in water emulsion type base, vanishing type stearate base and lubricating jelly base were used, but the grease base is the most simple effective and non-irritating. Experiments conducted in this hospital by using white petrolatum bees wax, and shark liver oil as base with penicillin were found very effective.

Selection of cases for penicillin treatment.—Penicillin was primarily effective against gram positive organisms both cocci and rods and against gram-negative cocci. Gonococci and meningococci are the most sensitive to the penicillin followed by pneumococci and hemolytic streptococci and then staphylococci.

Clinical application of penicillin.—(1) Acute and chronic staphylococci infections of the conjunctiva and lids.

* Specially contributed to THE ANTISEPTIC.

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- (2) Streptococcal infections of the conjunctiva.
- (3) Corneal ulcers and episcleritis.
- (4) Infections of the conjunctiva and the lids due to gonococcus, Koch-Weeks diplobacillus, inclusion bodies etc.
- (5) Gonococcal uveitis and exudative choroiditis.

Clinical improvements when penicillin is applied.—Clinical improvement is noticed within twelve hours in case of conjunctivitis, forty-eight hours in case of corneal ulcers and within a week in case of episcleritis. In trachoma, super-imposed infection disappears within twenty-four to forty-eight hours and chronic inflammation within two weeks.

Penicillin with sulphonamides.—Penicillin twenty thousand units in 100 grams fatty vehicle is found to be effective against all pyogenic infections. Penicillin 5000 units with Sulphathiazole 5%, is effective against gonococcal affections of the eye. Penicillin 5000 units with Sulphadiazine 5%, against pneumococcal affections of the eye. And 5000 units with Sulphanilamide 5% against trachoma and chronic inflammations of the lids and conjunctiva.

My thanks are due to the various editors and authors of various articles on penicillin and the Penicillin Number of the United States Office of War Information, 1944.

Refraction of Eye*

G. V. HANUMANTHA RAO, L.O., L.M.P. (MAD.), L.C.P.S. (BOM.),
Brodipet, Guntur.

AT the outset I should like to say that I shall try to make this dry subject of refraction of eye as interesting as possible from the view-point of a general practitioner, avoiding details. To appreciate the subject better I shall state something about the physiology of the eye in general. We shall consider the functions of the parts concerned in vision, which are optical, nervous and muscular. The general theory is when rays of light pass from one medium into another medium of greater density they are deflected out of their original course. This is what occurs when rays of light pass into the eye. The combined effect of the media of cornea, aqueous lens and vitreous is equivalent to that of a convex lens, and rays of light entering the eye are converged towards each other and come together at a point called 'focus' on the retina and forms an inverted image like that formed by the photographic camera. This happens in regard to distant objects. If the object is brought closer and closer a point will be reached at which it is impossible with any effort of accommodation to obtain a clear image. This is called the 'near point.' It is about 3 inches in childhood but power of accommodation diminishes and the near point recedes from year to year until at the age of 40 or 50 and the near work like reading can no longer be performed with comfort. This condition is called presbyopia or old sight. The nerve supply is from the oculomotor nucleus from the midbrain, by the 3rd nerve to the ciliary ganglion and fibres from which

* Paper was read at the Conference of the All-India Medical Licentates' Association held at Calcutta on 31-3-'45.

pass forward through the choroid to the iris and ciliary body. The innervation of the dilator muscle of the iris follows a more complex path through the spinal cord by the last cervical and first two dorsal roots.

Normally by the contraction of the ciliary muscle, the pupil is made smaller by contraction of the sphincter of the iris and at the same time the eyes are turned inwards by contraction of the two internal recti muscles. These movements of accommodation, contraction of pupil and convergence are innervated by the 3rd nerve. The retina is concerned in the perception of light, form and colour which focus on the retina (fovea centralis) so as to form images. These impressions are carried through various nerve paths to the mid brain where, by coordination and fusion, binocular vision results. That is to say, though we see an object with two eyes, logically we should have seen two images of the one object but by the wonderful fusion faculty of the brain, we see only single image of the object. This is binocular perspective or vision. So far I have stated the normal function of the eye. Now I proceed to say about abnormalities which are commonly known as errors of refraction of the eye. We have to detect the amount of error by which the eye differs in its refraction of power from the normal eye.

As already said, normal eye, when accommodation is in abeyance, should focus distant objects sharply on the retina, and it should be able, by means of accommodation, to form a clear retinal image of the object even when it is brought close to the eye. Suppose the length of the eye is greater and accommodation is at rest, the rays from a distant object are focussed in front of the retina. The same thing happens either from excessive curvature of the cornea, from high index of refraction in the lens. Now we have the condition known as short sight or myopia. Here the refracting power of the eye is excessive and we have to reduce it with the help of a concave lens placing before the eye, which renders the entering rays more divergent and throws their focussing point back to the retina. The lens is known by minus sign.

On the other hand, when the refractive media and the length of the globe are such that with accommodation at rest, the focus of parallel rays would be behind the retina. This may also happen from undue flatness of corneal curvature from absence of the lens, or from shortness of the globe. Now we have the condition known as long sight or hypermetropia. The refracting power is deficient and to correct this we must place before the eye a lens which will add to the refracting power and such a lens will be convex, which is denoted by plus sign. It will render the incoming rays more convergent and thus bring their focus forward to the retina.

But in some eyes the curvature of the refracting surfaces especially of cornea is not equal in all meridians, consequently a pencil of rays entering the eye ball from a distant point of light, cannot all be brought to a focus on the retina at the same time. Sharp is the focus in one meridian and blurred in the corresponding one which is at right angles to the first meridian. Such condition is called astigmatism. In order to correct such an error we must place before the eye a lens concave or convex cylinder flat in one meridian, called the axis so as to diminish or increase the refracting power of the corresponding meridian of the cornea in particular. When one meridian requires a plus power the other requiring minus, the error is known as mixed astigmatism and so on. The symptoms associated with errors of refraction are; (1) those referred to the eye, and (2) those not referred to

the eye. Under the first we have defective vision which may be for distant objects, for near objects or for all distances and also include fatigue symptoms, as pain behind the eye balls, tiredness, dryness, watering and redness of eyes and flickering of lids etc., All these symptoms are prone to come on particularly during or after continued use of the eyes for near work, sewing or reading. If the strain is long continued redness and watering may lead to conjunctivitis or blepharitis which will not be cured until suitable glasses are worn constantly. Under the second heading of symptoms not referred to the eye, the commonest symptom is headache. It is very often low frontal head-ache, but occipital or ocular headache may take the form of a neuralgic pain radiating from the occiput down the back of the neck, and ocular headache may be frontal, temporal, vertical or occipital. They are sometimes called as shopping or cinema headaches on account of their observed association with these occupations. Besides headache there are other symptoms which are said to be directly due to errors of refraction, but not likely to be recognised as such by the patient. Some of these are insomnia, lassitude, drowsiness when reading, irritability, giddiness, and diminished power of application to work. These may lead, perhaps secondarily, to dyspepsia and other general disturbances and in a certain number of cases to chorea, epilepsy and migraine. The correction of errors of refraction has been found to relieve or cure the disease. I should point out to you clearly that dimness of vision, headache and other symptoms are not equally pronounced in all cases. Pronounced visual defect is often accompanied by no discomfort and the most severe forms of asthenopia and headache may result from an error which causes no appreciable reduction of vision. Eye trouble from comparatively slight errors is apt to develop in young children during their early years at school, in women after child-bearing or during lactation, menstrual periods etc., or in persons of either sex and at any age after an exhausting illness as we come across in our daily practice.

Now I shall take up varieties of defective vision, viz., myopia, hypermetropia, presbyopia and anisometropia separately and describe each briefly.

Myopia.—The patient complains of dimness of vision for distant object, while near vision is good. The dimness of vision has usually been progressive. Headache and asthenopia are seldom present in pure myopia. The myopic eye being longer than the normal, the eyes are not apt to appear unduly prominent. Myopia is seldom present at birth as it is held so by many eminent ophthalmologists. It is said to develop during childhood, and in most cases shows a tendency to increase, especially during the period of bodily growth. Myopes may be divided into two groups. In the first, the myopia remains moderate in amount, complications are absent and vision with suitable glasses is perfect. In the second group, the condition is of a more serious type. There is progressive stretching of the posterior part of the globe accompanied by increase in myopia-vision even with glasses. The stretching of the posterior part of the globe produces the ophthalmoscopic picture of thickening of the choroid and also a 'crescent' at the temporal side of the disc. The crescent widens as the eye stretches, and then the disc becomes surrounded by a zone of atrophied choroid. Patches of choroido-retinal atrophy may also appear at the macula. These eyes are in danger of degeneration with opacity of vitreous, detachment of the retina, and dislocation of the lens. Divergent squint is a

Hypermetropia.—In moderate hypermetropia in young persons dimness of vision is not complained of, since by bringing accommodation into play, the deficient refraction of the eye is augmented to the extent necessary to bring parallel or even divergent rays to a focus on the retina. In higher degrees it is impossible, even with accommodation, to get clear sight. Hence dimness of vision is complained of, and the older the patient, the smaller will be the amount of hypermetropia compatible with good sight. If the hypermetropic eye were a passive optical instrument even the smallest amount of hypermetropia would cause dimness of vision there would be but one glass which would cause parallel rays to be focussed on the retina, and that glass would be the measure of the hypermetropia; but the ciliary muscle and the muscles of iris are rarely at rest, so we may find several lenses with which the eye gets equally distinct vision. The weaker the lens, the more of the accommodation is called into play. The highest convex glass with which the eye gets its best distance vision is the measure of the manifest hypermetropia. The tonic contraction of the ciliary muscle augments the static refraction of the eye (quoted cases of children myopic in subjective test, but hypermetropic after atropine application) and conceals a certain amount of the hypermetropia. It can be rendered manifest by completely paralysing the ciliary muscle by atropine and this method is employed in our actual practice, especially in children in whom the tone of the ciliary muscle may conceal quite a large amount of latent hypermetropia. Headache and asthenopia are the commonest symptoms of hypermetropia. Convergent squint is an occasional complication.

Astigmatism.—The symptoms of astigmatism include dimness of vision, asthenopia and headache. Dimness of vision does not take the form of a general blurring, as in myopic, but in looking at letters certain limbs are more distinct than others. Of all forms of metropia, astigmatism is the most prolific cause of headache and in certain subjects an apparently trifling amount of astigmatism can cause very distressing symptoms. The headache, tiredness of eyes, etc., is an expression of fatigue of the ciliary muscle, iris sphincter and also brain in their efforts to obtain and keep sharply defined images in an eye optically unfitted for the task. Moderate and slight degrees of astigmatism are the most frequent causes of headache but may not give rise to complaint of dimness of vision. This is because the efforts of ciliary muscle and pupillary sphincter continue to overcome the blurring effect of the error. In the later degrees of astigmatism, however, the vital defect is greater and since the efforts to focus the images are futile, they are abandoned and there is a corresponding absence of fatigue symptoms.

Presbyopia.—In pure presbyopia symptoms are only experienced when the patient engages in reading and other near work. The symptoms are dimness of vision, headache and asthenopia when the eyes are used for near work. The dimness is caused by the inability of the ciliary muscle to overcome the resistance of the lens and focus the divergent rays coming from a near object. At first the difficulty is overcome by holding the book a little further off, through time, however, the book has to be held at such a distance that the print is too small to be made out. It is then impossible to obtain clear vision of that particular object except with the aid of glasses. Presbyopia comes on earlier in hypermetropia since part of their accommodation power is constantly being employed to bring even distant

object into focus. Presbyopia is later in onset in myopes, since the myopic eye is already without glasses focussed for near objects. Headache and other symptoms are not frequently complained of in pur presbyopia, since the patient usually experiences first the difficulty in seeing, and understanding the reason for this, seeks the aid of glasses before fatigue symptoms develop. But if reading and other near work is persisted in without glasses, headache and asthenopia will supervene.

Anisometropia.—The symptoms are those already referred to varying according to the nature of the error, but if one eye is moderately myopic and the other is moderately hypermetropic there may be no discomfort and no noticeable defect of vision, since the myopic eye is used for near work and the hypermetropic eye for distance.

So far the subject is dealt with from the view point of a general practitioner and there is yet lot of the subject remaining in regard to prescription of glasses for the various conditions stated already. The subjective and objective tests, retinoscopy, ophthalmoscopy and so on. Besides the quality of glasses which are crystals, pebbles, Crooks lenses and so on, we have to prescribe a correct frame also to avoid spherical aberration and decentralisation of the glasses. This portion of the subject, I promise to take up at another time to do full justice.

Occurrence of Nagasore in Jamnagar

DR. SANTOKH SINGH.

Laboratory, Irwin Hospital, Jamnagar.

NAGASORE or 'Ulcus tropicus' has been given several names by different investigators according to the region where this ulcer has been specially prevalent thus indicating its serious and mysterious nature.

Its occurrence has never been reported from Jamnagar. It has, in India, spread beyond its former geography of Assam, to places where it had never occurred before such as Calcutta, Benares, Karachi and other places. In Jamnagar a few cases were seen in the months of August—September 1943 after the rains. This year ('44) cases of Nagasore began to come under notice from the month of July and by the beginning of September the disease had spread in fairly severe epidemic form.

The original source of the infection is from the imported cases of these ulcers amongst the evacuees from Burma, via Assam and the spread of the disease here due to extremely insanitary conditions during the continuous rainfall in the months of July-August, when it rained with practically no intermission and sunshine. Subsoil water rose almost to the surface level and everything became damp (the summer was particularly cool). The lanes and *kachcha* roads were a scene of marsh and mud.

The people in this part of the country are habituated to walk in chapals, which may be a good footwear during dry weather but very inadequate protection on a marshy pathway. Therefore, it was almost a bare-foot journey through the marshy lanes with the legs exposed almost to the knees. This seems to be one of the chief factors in the spread of the disease as many other investigators also believe that tramping about

bare-footed and bare-legged in the mud exposes one to inoculation with the virus of Nagasore. It has been suggested that the pathogenetic virus has its habitat in the mud and mouldy vegetations of the marshes. Weak state of health is not so important a factor in the production of the disease as is tramping in mud. STRONG disputed the statement that the clinical course of the ulcer was affected by the constitution. PATTERSON (1908), in Assam, was convinced that debilitating conditions due to other causes did not influence the disease.

As to whether the virus enters the body and forms the ulcer subsequently or lies on the apparently healthy skin, is not certain but for the production of local infection, injury to skin, that is breach of skin surface by scratch, prick, slight wound, abrasion, insect bite, chronic ulcer is necessary (KONIG). This, in the first instance, as is mostly believed, induces a local infection at the seat of injury, as in erysipelas and puerperal fever. Its association with malaria is, it is stated by some authorities, with the mosquito bite as a traumatic factor, though it seems to be true that an individual is rendered susceptible by malaria to the specific virus of Nagasore; spread of the gangrenous process is liable to take place with each access of fever (ALLBUTT).

There are differences of opinion as regards the effect of meteorology on the causation and frequency of Nagasore, but all are agreed to a certain extent as to the influence of extreme fluctuations of temperature on the pathogenesis and so far also of a higher degree of atmospheric moisture; that a higher thermometer reading is without significance in itself for the development of the disease, as has also been our experience in Jamnagar.

Over-crowding, insanitary and unhygienic conditions are probably favourable to the spread of the disease. Relation to moisture both atmospheric and subsoil to hygiene is more important than housing conditions and ventilation.

We have been unable to confirm elements as to the relation of Nagasore to diet protein, as it has been found to occur both in vegetarians and non-vegetarians, rich and poor alike.

Bacteriology.—The bacteriological examination of the ulcers shows that it is the result of the inoculation of a specific morbid poison in a susceptible person; the nature of the pathogenetic virus is not yet known. Early sites of infection, on bacteriological examination, show in our series of cases, at first only a few pyogenic cocci. If the infection is not treated and allowed to progress numerous fusiform bacilli appear in the discharge and subsequently spirochæte appear and are found in the base of the ulcer in abundance. In 1905 BLANCHARD described and named this spirochæte after VINCENT, and PROWVAZEK in 1907 gave it SCHAUDIN's name, both attributing these ulcers to spirochæte. The consensus of opinion is that TREPNEA VINCENT and S. SCHAUDINNI are identical. The pathogenicity of these organisms has been emphasised by numerous observers.

The typical film from a case of Nagasore shows an admixture of fusiform bacilli and S. VINCENTI, and several other views have been put forward as to their relationship. The bacilli are exceedingly pleomorphic in culture. WEAVER and TUNNICLIFF were the first to culture them successfully. In 1932, SMITH brought together a review of the work of many investigators

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and the results of his own researches on this subject. In this, SMITH reported that spiral forms take the form of fusiform bacilli in pure culture and has seen fusiform bacilli develop in spiral forms. TODD and SANFORD, keeping the question unsettled, regard them as the same organism and class them as spirochæte.

On the other hand, KNOWLE in agreement with WENYON's view, states that the spirochæte is a purely saprophytic organism and not the cause of the ulceration and mentions in support of his opinion that three injections of Neoarsenobillion entirely failed to affect the spirochæte in a case of tropical ulcer under his treatment. It is now known that S. VINCENTI are not affected by the injections of arsenical compounds. Local applications of N.A.B., as stated by MOHIUDDIN, cure these ulcers in an unusually short time.

Whatever the true ætiology of Nagasore, these organisms play an important part in the causation of the histopathology, though there are as many important predisposing causes about which further research is urgently needed.

In some of the cases of our series, the Kahn test was positive during the course of the evolution of the ulcer and its positiveness was in proportion to the severity of the ulceration.

Clinical picture.—If one were to collect all the cases seen here it would be a heterogeneous group, both sexes, all ages, rich and poor, in short, there would be nothing in common among them except the history of having walked bare-footed in the mud during the particularly heavy rainy season.

Infection developed either on the apparently healthy skin or began a few hours after the first scratching the skin. In a majority of the cases it followed abrasion, mosquito bite or shoe bite. (After shoe bite, the shoe was discarded and journey resumed bare-footed.)

Frequent sites of the ulcer have been the parts exposed to mud, namely the dorsum of the foot, the ankle and the leg. In a small number the ulcer has been found on the thigh, trunk, hands and forearms. In a particular case the ulcer appeared on both legs, hands and forearms and counted a dozen sores. It is usual to see one to six sores on one person.

After the specific inoculation takes place, the skin of the affected part becomes inflamed, painful and raised and there is local irritation. In the course of the day or even a few hours, a vesicle or a bulla, filled with the sero-sanguineous fluid forms in the centre of the inflamed area. This is accompanied by severe pain and some amount of constitutional disturbance.

The vesicle soon breaks and an unhealthy ulcer results; the base is rough and covered by a pulpy greyish adherent false membrane bathed in a foetid exudation of a brownish colour on which may be found fine streaks of blood. The secretion is abundant and of a characteristic putrid cadaver odour.

The edges are raised and the ulcer undermined and deep, it may become quite deep and even reach the deep fascia. Around the ulcer blebs containing serous fluid form which do not become purulent.

Pain has been an early and important symptom (PATTERSON and SCOTT). Walking and standing are very painful but pain is considerably relieved by lying down. Nights are disturbed and in severe cases misery of sleepless night and painful days reminds one of severe pain of acute corneal ulcers. PUNJA and GOSH state, on the contrary, that pain is much less than one would expect from such extensive lesions.

The cases seen here can conveniently be classified as follows:

1. *Atonic forms*:—After the formation of ulcer its progress is arrested by a process of self-limitation, it is little painful, sometimes serpiginous and lasts for months, with minimum of gangrenous reaction; healing by cicatrization takes place but resultant scar is, too often, unsatisfactory, and liable to break down on slightest injury.
2. *Grave form*:—This is found mainly in debilitated subjects. Due to rapid extension it forms a large spherical ulcer, more like a burrow filled with purulent foul discharge which does not easily come off, and it is very painful. The tissues surrounding the ulcer may be œdematous and red. This ulcer may take a fulminating character and rapidly spread, layer after layer of the soft parts, being attacked by the gangrenous process. The slough then separates and the fascia and the muscles are laid bare and decomposed, blood vessels and nerves are dissected out. Tendons and bones are exposed. Associated with local changes general symptoms usually supervene such as weakness, sleeplessness and fever. After recovery disfigurement by contractures, mutilation and ankylosis take place.

These cases may start as grave form or may complicate atonic ulcers and pursue a phagadenic course. Mortality is very rare though a few cases have been reported.

Treatment.—In the absence of any specific, wide differences of opinion exist as to the efficacy of any particular method of treatment.

Treatment should be mainly in accord with surgical principles, attention however, being, paid to the patient's general health by treating any concurrent disease and by calcium injections. Absolute rest in bed with elevated limb should be the fundamental part of the treatment in severe cases.

An essential preliminary is the cleaning of the surface of the ulcer—long and painful operation—made by swabs and abundant irrigation with eusol, hydrogen peroxide or phenyl lotion.

Topical application of dried Magnesium Sulphate or of antiseptics such as T. C. P., chlorinate of lime 10% (Vincent's powder), Copper Sulphate and Iodoform (McGUIRE) have been found useful.

With the following treatment, as advised by McGUIRE, an ulcer of ordinary size heals in about a fortnight's time.

The wound is thoroughly cleaned as stated above and slough removed by abundant irrigation. Blebs are opened and surrounding skin cleaned.

McGUIRE's solution* is applied with a swab and washed off after 3 to 5 minutes; the wound is then dusted with the following powder:

Iodoform 1 part. Bismuth Subnitrate 3 parts.

* McGUIRE's solution consists of: Copper sulphate 2½ dr.; Phenol 1 dr. Glycerine 1 oz. The method of preparing the solution is important. The copper sulphate is well powdered and added to the glycerine; the mixture is then heated and stirred. If necessary it may be brought to boil until all the copper sulphate has dissolved. When the solution has cooled, Phenol is added.

The wound is dressed thus twice a day till the ulcer is clean and the discharge has ceased; this usually happens in 3 to 5 days.

An ointment* is then applied and the wound covered with elastoplast. or dressed and left for ten to 14 days, when complete healing has taken place.

Local application of novarsenobillon has also been used, N.A.B. 3% in Glycerine solution is well imbibed in the meshes of the ulcer. Oral administration of Stovarsol or injection of Novarsenobillon, is also serviceable, it is indispensable in cases associated with syphilis.

A short report by BYRNE and CROXON about local application of organic mercurials in the treatment of jungle sore is very encouraging. The wound is cleaned and 1/2000 mercuric acetate compresses are applied for six hours to thoroughly disinfect the lesion; elastoplast is then applied. Extremely rapid healing is reported to occur.

When the ulcer spreads inspite of the most energetic treatment, its local excision under local or general anaesthesia should be tried. Healing is hastened by skin grafting.

Acknowledgement.—My gratitude is due to DR. P. M. MENTA, Chief Medical Officer, Nawanagar State, for permission to conduct investigations in the Irwin Hospital and for permission to publish this article. Thanks are due also to DR. H. N. TOLIA for helpful co-operation in the trial of remedies in his wards.

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Cases and Comments

A Case of Patent Vitello Intestinal Duct

C. ADINARAYANA RAO, M.B., B.S.,
Parvatipuram, Vizag District, B.N.Ry.

M. S. Pathy, aged 49, came to my hospital for exudation of pus from the centre of his navel on 18-10-'44. He was having it for 15 days previously. There was only an exudation of a drop after drop of white pus from the lower part of the navel. There was a slight induration in the region of the navel. It was touched with rectified spirit and Sulphonamide Boric powder was dusted. Four days later he again came and by that time the induration has slightly increased in area. From the centre of the navel there was a protrusion red in colour like a polypus.

On 31-11-'44, he suddenly fainted, and I was called in to see him. The induration round the navel has increased, and the polypus-like red pyramidal protrusion from the centre of the navel has also increased, and a slit along its under surface developed. The quantity of pus exuding from the lower part of the navel has also increased. There was continuous pain of a gnawing nature in the central part of the abdomen, and due to the severity of the pain he fainted. I dressed up the wound for that day and kept him under observation. There was no swelling at any particular part including the whole navel to indicate the formation of an abscess. There was hardness and infiltration for an inch round the navel.

I decided to explore the region and operated under local anæsthesia on 3-11-'44. A crucial incision with its centre at the centre of the navel was made, and the two upper flaps up to the level of the deep fascia were reflected and dissected up. There were three surprises in store for me; firstly, pus coming out from the lower part of the navel was in reality coming from the upper part; secondly, pyramidal polypoid-like protrusion was found to be only a fold of skin, gradually pushed forwards by something from behind. The red colour was due to erosion by the continually exuding pus. There was no accumulation of pus at any particular area but only oozing from a small hole. The hole was enlarged and on feeling it with a probe and gentle manipulation, a stone, $1\frac{1}{2}$ inches long $\frac{3}{4}$ inches diameter and cylindrical in shape was taken out. It was clay-coloured and soft and on cutting it produced a grating sensation and had no odour to suggest an enterolith. Further exploration showed no more umbilicoliths. So the lower flaps were not reflected. The central pyramidal portion was ligatured at its pedicle as low down as possible and cut out. The wound healed up but still a sinus remained from which 20 to 30 drops of pus would exude per day. The patient was distressed as the pus soiled his clothes but otherwise he was moving about and had regular meals and evacuation. The urine was normal.

I decided to operate again. And on 13-12-'44 under Novocaine I gave an incision $2\frac{1}{2}$ inches long along the linea alba. The central part of the incision encircled the navel as I wanted to remove it to prevent the accumulated dirt making the wound septic. I followed the sinus with a probe which went in to a distance of $1\frac{1}{2}$ inches when gently put in. I separated the muscles layer by layer and followed the sinus which was now made out

to be a thin-walled duct. After separating the recti the peritoneum and beneath this the coils of the small intestine were seen. Still the duct with very thin walls was going into the abdomen. As the area was septic I decided not to open the peritoneum but ligatured and cut out the duct at that level.

The absence of any signs and symptoms of peritonitis and the absence of any food or intestinal secretions coming out through the duct showed that it was not patent at the intestinal end of it. The umbilicus was excised completely and the margins of the wound pared and sutured up. It was allowed to heal by primary intention. On the third day, a small swelling in the region of the incision appeared, but on putting a probe, 1/2 ounce of mucoid-sero-sanguinous fluid escaped. The procedure had to be repeated on the fifth day when the same fluid in lesser quantity came out. Subsequently there was no swelling. The sutures were removed on the 8th day and tension stitches on the 10th day. All through the patient had a mild cough which was neither due to pharyngitis and bronchitis nor confinement in bed. After the sutures were removed the cough disappeared. Now the patient is quite alright and moving about.

The interest in this case is due to the fact of the presence of an umbilico-lith which, though it became septic, did not form an abscess. Secondly, the rarity of the presence of a patent vitello intestinal duct leading to the intestines. It was present from birth, being a vestigial structure, but has not caused trouble. It was closed on the intestinal side but patent at the outer end closed by a clay coloured umbilicolith. The presence of the red-coloured polypoid mass protruding from the centre of the navel simulating a polypus caused some confusion and added to the difficulties of diagnosis.

Local Auto-hæmotherapy in Carbuncle

An analysis of 27 cases

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THE author started to give circum-injection of auto-blood and observe its results in cases of carbuncle towards the later half of the year 1939 and continued it till the end of 1941.

From the point of view of treatment, the cases may be divided into two main groups. The first group consisting of 12 cases received injections of auto-blood locally with anhydrous Magsulph powder or paste dressing. The second group comprising of 15 cases, may be divided into three sub-groups in accordance with the line of treatment followed. Sub-group II-A consisting of 10 cases, received routine treatment of crucial incision and anhydrous Magsulph powder or paste; sub-group II-B, 2 cases in all, were treated with total excision; sub-group II-C, numbering three, were accorded Sulphapyridine or Sulphathiazole treatment, both internal and local in open cases; and only internally with Bi-mag-paste (B. I. Co.), locally in closed early cases with or without incision.

The second group served as control to evaluate the efficacy of local auto-hæmotherapy. No special plan was followed in the selection of cases

except cases involving the dangerous area of the face, which very often proved rapidly fulminating and were exclusively set apart for Sulphathiazole or Sulphapyridine treatment. With occasional deviation now and then, other cases that came under my care were taken alternately in group I and II. However, the cases may be classified into different clinical categories under the aforesaid main groups in accordance with the clinical picture at the commencement of treatment. According to the stage and local condition of the inflammatory process at the time of admission, all the cases have been classified under two heads, "early" and "advanced." Cases with a hard, painful, brawny, dusky-red swelling, studded with or without vesicles and pustules but no opening and the indurated margin still spreading have been taken as "early." Cases which have become localised with cribriform condition of the skin or a few openings exposing localised with cribriform condition of the skin or a few openings exposing ashy-grey slough, and discharging purulent matter, interspersed between numerous pustules over a boggy swelling, have been marked as "advanced." In accordance with the degree of severity the cases have been stamped as "mild," "moderate" and "severe." This classification, although not scientific, is rather convenient and helpful in assessing the value of different treatments. In the appended tables, the cases have been so classified.

Majority of the cases were treated in hospital but some were treated at home in course of private practice.

General treatment.—General treatment for all the cases were almost the same. Patients having history of previous diabetes and presence of sugar in urine more than 1% in the beginning of treatment, received appropriate doses of Insulin (either ordinary Insulin or Protamin Zinc Insulin) along with Glucose by mouth or parenterally in addition to regulation of diet. Cases of temporary glycosuria with less than 1% sugar in urine, were not given any Insulin.

In highly toxic cases, necessary treatment to combat toxæmia and conserve strength of the patients, was accorded. Special symptoms and complications were dealt with on appropriate lines as and when they developed.

Local treatment and technic of injection:—In cases of carbuncle involving a small area less than 3" in diameter, a single injection of citrated auto-blood 10 to 30 c.c. at different points was given both intracutaneously and subcutaneously all round the growing margin and into the periphery of the inflamed tissue and some into the openings of the carbuncle till a few drops of blood welled up from the openings of the carbuncle if there were any. In other cases, both early and advanced, involving a bigger area, more than one injection was given on consecutive days, each day at a different site and at several points, so as to circumscribe and cover the inflamed part all round as early as possible. After injection, in advanced cases, it was dressed with Anhydrous Magsulph powder or paste and in closed early cases Bi-mag-paste (B. I. Co.) or Anhydrous Magsulph and Cataplasmata Kaolin in equal parts, was spread over the inflamed area and dressed with a firm bandage. Later on in all cases, whether of group I or II, presenting healthy granulating ulcer, weekly dressing with Acriflavin in sterile crude cod liver oil was given.

Tables explained:—The appended "Table A" shows in a summary form the clinical notes of the cases of groups I and II.

TABLE—A.

Summary of Clinical Notes of the Cases.

Case No.	Age.	Site and area	Duration before treatment in days	Stage and clinical type	Urine report	Main treatment	Days under treatment	Result	Remark
1	42	Back, 4" X 4½"	12	AM	Normal	CAB	22	C	Complete resolution.
3	46	Back, 5" X 5"	14	AMo	Sugar	"	26	C	
5	36	Back, 2" X 2"	4	EM	Normal	"	7	C	
7	47	Nape of neck 6" X 6"	14	AS.	Sugar 3% Acetone-present	"	34	C	Partial resolution. Do.
9	52	Back, 4" X 4"	10	AMo	Sugar 0.5%	"	21	C	
11	48	Nape of neck 4" X 4"	7	EMo	Normal	"	17	C	
13	45	Back, 3" X 3"	7	EM	Normal	"	14	C	Complete resolution.
15	38	Back, 6" X 6"	14	AS	Sugar 1.25%	"	35	C	
16	44	Neck, 5" X 5"	11	AS	Sugar 2%	"	31	C	
20	35	Back, 2" X 2"	3	EM	Normal	"	10	C	Complete resolution.
23	56	Back, 7" X 7"	4	ES	Sugar 5.5%	"	35	C	
24	54	Nape of neck, 4" X 4"	10	As	Normal	"	28	C	
Sub-Group II-A.									
2	36	Back, 4" X 4"	12	AMo	Normal	CI	48	C	died
4	48	Nape of neck, 5" X 5"	14	AMo	Sugar trace	Do	57	C	
6	38	Back, 2" X 2"	3	EM	Normal	"	62	C	
8	46	Back, 6" X 6"	12	AS	Sugar 5%	"	76	C	died
10	48	Back, 2" X 2"	14	AM	Normal	"	38	C	
12	32	Back of neck, 2" X 2"	3	EM	Normal	"	51	C	
14	36	Back, 4" X 4"	9	AM	Normal	"	42	C	died
19	55	Back, 6" X 6"	9	AS	Sugar 4%	"	6	C	
21	47	Nape of neck, 6" X 6"	27	AMo	Normal	"	50	C	
22	35	Nape of neck, 4" X 4"	9	AM	Normal	"	48	C	
Sub-Group II-B.									
18	54	Back, 3" X 3"	8	AM	Normal	TEX	34	C	Required incision. Complete resolution. Partial resolution and Spontaneous Bursting.
27	32	Left Buttock, 3" X 3"	5	EM	Normal	"	43	C	
Sub-Group II-C.									
17	35	Root of nose, 2" X 1"	2	ES	Normal	M&B 693	23	C	Required incision. Complete resolution. Partial resolution and Spontaneous Bursting.
25	28	Upper lip, 1" X 1"	2	ES	Normal	M&B 760	6	C	
26	31	Upper lip, 1½" X 1"	4	ES	Normal	M&B 760	10	C	

C—Cure.

CAB—Circum-injection of auto-blood.

CI—Crucial incision.

TEX—Total excision.

AM—Advanced mild.

AMo—Advanced moderate.

AS—Advanced severe.

EM—Early mild.

EMo—Early moderate.

ES—Early severe.

In "Table B" comparison of the results of different treatments have been made. Group II consists of 3 sub-groups; out of this the results of sub-group II-C seems to be the best. But its number is only 3 and all were early cases. Nevertheless, as far as the author's further experience goes, he finds this treatment a marvellous one, specially with Sulphothiazole when given in adequate rather big doses. It will not be irrelevant to mention it here that the author has got very good results by circum-injection of Sulphathiazole in other cases not reported in this paper and in doses not sufficient to attain requisite effective concentration in blood.

TABLE—B

Comparison of results of different treatments.

Group, sub-group, type and stage	Total No. of cases	% of mortality excluding moribund cases	Average period of treatment in days for cure	No. & % in whom unsightly scar with loss of secretory function of skin occurred	% of cases ending in resolution.		Remark
					complete	Partial	
Group-I	12	Nil	21	1 : 9.09%	18.1%	18.1%	
.. Mild type	4	..	13.2	Nil	50%	25%	
.. Moderate type	4	..	23	1 : 25%	Nil	25%	
.. Severe type	4	..	33.7	Nil	—	—	
.. Early stage	5	..	16.6	..	40%	40%	
.. Advanced stage	7	..	28.1	1 : 14.3%	—	—	
Group-II	15						
.. Sub-group II-A & II-B	12	8.3%	49.9	100%	—	—	
.. .. Mild type	7	Nil	45.4	100%	—	—	
.. .. Moderate type	3	..	51.6	..	—	—	
.. .. Severe type	2	50%	76	..	—	—	
.. .. Early stage	3	Nil	52	..	—	—	
.. .. Advanced stage	9	11.1%	48.3	..	—	—	
.. .. II-C	3	Nil	14.6	Nil	33.3%	33.3%	

Sub-group II-B consists of only 2 cases and in comparison it may conveniently be included in sub-group II-A, from which the results do not differ materially and it has been so shown in "Table B."

One case in group I was received in a moribund condition and died a few hours after admission. This case has not been reported in this paper. Results have been shown for whole groups as well as separately for 3 different clinical types and 2 stages as classified above under each main group I and II.

Facts observed:—The following points were observed in the course of treatment and on analysis of the results, which could be attributed to the action of auto-blood.

1. There was transient rise of temperature by a few degrees generally 6 to 12 hours after the injection in both febrile and afebrile cases.
2. Blood examination in cases in which it was done, revealed increased leucocytosis with rise in percentage of neutrophil granulocytes after the injections.
3. Circum-injection of auto-blood cut short the spread of the inflammatory process.
4. Its action in this respect seemed to be extremely local being pronounced on the side of injection only. But cases where a single injection covered the whole inflamed tissue the improvement was all round. The indurated angry skin became soft, supple and dull; induration and infiltration of subcutaneous tissues less.
5. Very early cases ended in complete resolution.
6. Infiltration and induration, in advanced cases, lessened and the slough liquified rapidly and drained off through one or two big openings situated on the dependent part while other openings closed.
7. In slightly advanced but early cases, vesicles and pustules burst leaving no openings and the pus and liquefied slough localised in a small contracted area simulating an abscess rather with low tension, which required a small incision for drainage.
8. Further destruction of skin ceased; so formation of big unsightly scars with loss of secretory functions of the skin was absent or minimised.
9. Healing process was hastened and period of stay in hospital was appreciably reduced.
10. Immediate general improvement was not perceptible; but 2 or 3 days after the injection, specially when the carbuncle was well circum-scribed and covered all round by injections, general improvement with concomitant improved local condition was definitely noticeable. Toxaemia disappeared and other constitutional symptoms including glycosuria cleared up.
11. In carbuncles of diabetics local auto-hæmotherapy did not favourably influence the course, unless reinforced by Insulin, Glucose and restricted diet.
12. It seemed to have some immediate and specific local action in addition to a declared one, on the course of the disease.
13. Mortality was nil in this series. The single moribund case that died a few hours after admission has not been reported in this paper.

Discussion.—Comparison of the results of different treatments speaks favourably about circum-injection of auto-blood. But the number of cases in this series is too small to pronounce any definite opinion. The experience of others since CARP (1927) who advocated this line of treatment is neither extensive nor conclusive. Most of the reports present an encouraging picture showing some or other advantage for it over others when combined with other common therapeutic measures in cases of carbuncles and boils, especially if resorted to early. RIT (1937) and DUTTA (1940) reported very good results with auto-blood in cases of carbuncles. SASTRY (1942) is of opinion that auto-blood yields good results in non-diabetic carbuncles if undertaken early. MUDALIAR (1940) had good results in certain types of

carbuncles with this treatment. KAR (1941) and PANJA (1941) advocate this in cases of spreading carbuncles and recurrent boils respectively.

If in the light of observations made in this series, we accept that it is a valuable improvement in the treatment of carbuncles, then the moot point as to the mechanism of its action crops up. How does the injection of patient's own blood influence beneficially the course of the disease? No satisfactory explanation is forthcoming. It seems to be connected with the immunological process of the body. The endeavour to get a hypothetical answer to the question, brings into the picture the whole complex mechanism of immunity, which, by itself, is not yet fully understood. CARP (1927) feels that "the mechanism of curative phenomena consists of increased cellular activity, which prevents the spread of infection and increases autolysis."

Carbuncle is generally caused by staphylococcus aureus, both hæmolyticus and non-hæmolyticus and very rarely by staphylococcus albus. Staphylococcus has mainly two toxins, extra-cellular and intra-cellular, the former consisting of alpha and beta toxins. Injection of exotoxin or its attenuated product, toxoid or anatoxin, stimulates production of anti-toxin and with the rise of anti-toxic content of blood, there is correlated improvement in clinical condition. Investigations of CONNOR (1935), WHITEBY (1936) and other workers have clearly proved this. Anti-toxic serum has been successfully used in cases of acute staphylococcal infections. CONNOR and MCKIE (1934), MURRAY (1935) and many others found that there is slight but definite rise in the anti-toxin content of the blood of patients suffering from superficial staphylococcal infections of skin such as furunculosis and sycosis barbae. KAR (1941) states that normal blood contains less than one unit of Staphylococcal anti-toxin per c.c. whereas in presence of staphylococcal infection it rises to 4 or 5 units per c.c.

It is quite likely that the anti-toxin of blood rises considerably higher in presence of deep staphylococcal infections such as carbuncle. In that case by circum-injection of auto-blood, rich in anti-toxic and anti-bacterial content, the inflamed area is suddenly flooded with such substances, which ordinarily in such cases, due to vascular turgescence, increased tension of exuded fluid in tissue spaces and consequent strangulation of blood and lymph vessels, do not reach the bacteria and their toxin in sufficient quantity. The anti-toxin immediately neutralises the toxin and anti-bacterial substances, rob the organisms of their virulence and initiate their autolysis. Then the fixed and wandering defensive cells gain the upper hand in their fight and ultimately overcome it. Immediate local improvement might be due to former phenomena and the delayed general improvement due to the latter, aided by a general stimulation of the defensive mechanism of the body, brought about by auto-blood inoculation, which acts as a foreign protein as well.

In another series of cases, observation of which is at present incomplete, the author gave circum-injection of foreign protein (milk protein) in place of patient's own blood, but from a small number of cases, so far observed, he has formed a tentative opinion that auto-blood has some definite specific action which is wanting in foreign protein.

If this be so, what will be the result of circum-injections of anti-toxic sera and immune blood or serum? I think it will give as good result as we get from auto-blood.

It has been observed by various workers that Sodium citrate in big doses by mouth hastens the necrosis and liquefaction of slough in boils and promotes rapid healing. SASTRY (1942) and PANJA (1941) agree with this finding. Carbuncle is congregation of boils with involvement of subcutaneous tissue and deep layers of the skin. It is caused by the same organism as that of the boil. So rapid liquefaction of slough observed in the present series of cases might have been due to the sodium citrate content of the citrated auto-blood injected. In this case sodium citrate comes directly in contact with necrosed tissue and its action, if purely chemical, must be stronger than when given per os.

Carbuncle is a very common disease but its treatment is not so satisfactory as we wish it to be. There are many methods of treatment for this malady, such as total excision, crucial incision and Magsulph, Sulphathiazole, shortwave irradiation, circum-injection of auto-blood etc. Each line of treatment has its merits and demerits; has its limitations. Many surgeons of repute are in favour of total excision. WANCHOO (1942) advocates total excision in each and every case of carbuncle. No doubt this treatment has its value in certain types of cases but to adopt it invariably in every case is neither judicious nor desirable nor even practicable, particularly in vital areas of the neck and face. Such excision when possible leaves a big and bad scar with loss of secretory functions of the skin. The period of hospitalisation is not materially less in this line of treatment being, on an average, six weeks in the series of cases reported by WANCHOO (1942). Sulphathiazole holds a rosy picture and seems to be the best but its cost is a great handicap and sometimes prohibitive. Shortwave irradiation is not available everywhere except in very big hospitals and its efficacy is open to serious doubt.

Conclusion.—If the results of circum-injection of citrated auto-blood prove as good as it is in the author's series of cases, it will be the simplest, cheapest and one of the best treatments for carbuncle. As such it warrants extensive clinical trial and scientific investigation.

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Pyelitis

(With an illustrative case report)

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PYELITIS can mimic a number of diseases belonging to different systems. Cases coming with pyuria are, of course, easy to be diagnosed. Difficulty lies in its diagnosis in cases who do not have any local symptoms and particularly those whose urine is clear. Below is recorded a case which presented clinical symptoms of a number of diseases without any macroscopic evidence pointing towards pyelitis.

Case report.—M., 9 years, Muslim female child, was admitted into the hospital with the complaint of continued fever—duration 3 weeks; pain in the abdomen—duration 10 days; unconsciousness with convulsions—duration one day.

On examination:—Patient was emaciated, deeply comatose, and having repeated convulsions. Temperature 101°F, pulse 124 per minute, respiration 30 per minute, pale, and tongue coated.

Nervous system:—Pupils normal in size and outline, reacting to light. Neck rigid. Kernig's and Brudzinski's signs negative. Jerks in upper and lower extremities present. Abdominal reflexes present. Babinski's Planter response—extensor on both sides. Abdomen, spleen and liver not enlarged. Other systems normal.

Investigation:—Blood. No malarial parasite detected. Cerebrospinal fluid—Protein 0.05; chlorides 760 mg%. Sugar—present in fine traces. No pus cells or any organisms detected.

Urine:—Sp. gr. 1.015, reaction neutral. Albumin present. Sugar nil. Pus cells and red cells present in large numbers. A few epithelial and granular casts also present. *B. coli* isolated in culture.

Progress and treatment.—In the beginning, the continued fever for three weeks led us suspect the case as one of typhoid fever. Unconsciousness coupled with convulsions with slight nuchal rigidity pointed towards meningitis. A possibility of meningism was also thought of in the face of the suspicion of typhoid fever. As such lumbar puncture was done. The fluid came out in moderate tension and was absolutely clear. Examination of fluid as detailed above ruled out meningitis. Within about fifteen minutes of lumbar puncture the patient became completely conscious and convulsion ceased. This made us retain the diagnosis of typhoid fever with meningism as its complication in whose favour was the normal C.S.F. picture and the dramatic response of her coma and convulsion after lumbar puncture. Next day at about 6 a.m. the patient shot up a temperature of 104°F. associated with rigor, having a pulse of 144 per minute, respiration 44 per minute. But the patient did not have coma or convulsions. Clinically it was thought to be a case of malaria as the temperature had touched normal on the previous day and in addition the present temperature shot up with rigor. Blood was examined for malarial parasites but none were found. At this stage a suspicion was raised in our minds regarding the possibility of pyelitis. The points in favour of pyelitis were the continued fever, the sudden onset of high temperature with rigor and the abdominal pain. It was of course a tentative diagnosis. The patient was catheterised,

and the urine examination as detailed above clinched the diagnosis of pyelitis caused by *B. coli*. The patient was put on Cibazol tablets 1 t.d.s. and there was a dramatic response within 24 hours as evidenced by the control of temperature and disappearance of abdominal pain. Patient made a complete recovery and was discharged cured from the hospital with a normal and sterile urine.

Points of interest.—(1) The case was clearly one of pyelitis as proved above. At the onset it presented symptoms of typhoid fever with meningeal irritation.

(2) The coma and convulsion were no doubt due to meningeal irritation, as proved by the returning back of consciousness and disappearance of convulsions almost immediately after lumbar puncture. It proves that pyelitis can also be responsible for the production of meningism.

(3) The meningism could easily be mistaken for meningitis.

(4) At one stage a diagnosis of malaria was entertained which was proved to be wrong.

(5) The continued fever with emaciation and abdominal pain had also raised the suspicion of abdominal tuberculosis.

(6) Notwithstanding its being a frank case of pyelitis still it had no local manifestations of the same excepting the abdominal pain. Macroscopic examination of urine showed that it was perfectly clear and as such dependence on this would have evaded the diagnosis of pyelitis completely.

Comments.—The authors from their previous experience and the data of the present case are inclined to point out that a possibility of pyelitis must always be remembered in patients, particularly children, who come with: (a) atypical picture of typhoid fever; (b) with meningism; (c) with suspicion of meningitis; (d) sudden onset of fever and rigor with blood free from malarial parasites; and (e) continued fever with abdominal pain.

It needs emphasis that on no account one should negativate the diagnosis of pyelitis on the presence of a clear urine with absence of local symptoms. Urine must be examined microscopically for pus cells. In this connection it may be mentioned that in pyelitis pus cells may be constantly present and intermittent passage of pus cells is an important feature in the life history of pyelitis. Hence, urine must be examined more than once for the presence or absence of pus cells. It hardly needs mention that culture of the urine for micro-organisms will be the best and scientific method of diagnosing pyelitis.

But in places where there are difficulties regarding a thorough examination of urine we would recommend that the patient be given a trial with Sulphonamides and its response noted. If it is pyelitis there will be response in a large number of cases within about 48 hours.

Acknowledgement.—Our thanks are due to Major General H.C. BUCKLEY, M.D., F.R.C.S., C.S.I., I.M.S., Principal, Medical College, Agra, for kind permission to publish the report of the case.

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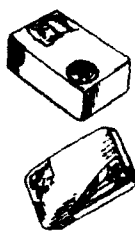
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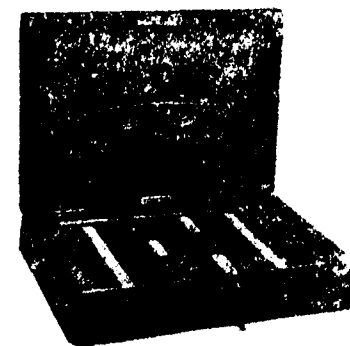
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veritas odium parit

OUR candid comments in our April issue on the wrong lead given by RAI SAHIB DR. MANOHARLAL KAPUR, at the recent session of the All-India Licentiates' Conference held in Calcutta, has hurt our contemporary, *The Indian Medical Journal*, to the quick, that it has thought fit to deal a homily to us on our duties and responsibilities and on the choice of language for our editorials. We have read and re-read our editorial again and find absolutely no justification whatsoever for the wrath that our contemporary has thought fit to shower on us, or for the heading it has deemed fit to give to its comments. We would not have deemed it worth our while to notice it, had not our contemporary characterised our argumentative and reasoned appeal as an emotional outburst of the hour and resorted to it itself without answering any of our arguments or points.

We are thankful to our contemporary for the encomium it has showered on us, in spite of its wrath, on the usual brilliance of our editorials, and our task has been also made easy by our contemporary's frank admission that we have ever been the Licentiates' good friend. We certainly take pride in the fact that we have consistently and persistently espoused the cause of the licentiates and fought for their just and legitimate rights ever since our inception. If to-day much of the inferiority complex that attached itself to the licentiates has become a thing of the past; if the caste system that disfigured the profession is fast disappearing, if the licentiates are given due recognition and entrusted with positions of importance and responsibility; these are not a little due to the untiring fight we have put forth from within and from without for more than three decades. We have never allowed party politics within the Association or loyalty to one's chiefs to warp our judgment or to deviate us from the right path. If, therefore, we deemed it our duty, as our contemporary seems to imagine, to call anybody by names or to threaten hell—we do not in the least admit this charge and the language we have used in our editorial will not, any impartial and unbiased reader will admit, allow of any such construction being placed on it,—it is because we felt and felt strongly too, that those at the helm of the A. I. L. A. are dragging our licentiate brethren in a path not at all conducive to their lasting interests.

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Invectives and misrepresentations are no reply to reasoned arguments. What is there in our editorial to which our contemporary can take legitimate objection? We find none; our contemporary has not pointed out anything. It does not say, it cannot say, that it is against amalgamation of the two Associations, or that amalgamation will land the licentiates in distress. It admits the need for amalgamation, as DR. KAPUR himself has done. But it says: "there is no need for unseemly hurry, because amalgamation resulting from frank discussion and suitable adjustments is likely to be more stable and sustaining than the one resulting from the satisfaction of the emotional outbursts of the hour." Does our contemporary mention the points that require frank discussion or the details that require suitable adjustments to bring about a stable and sustaining union? Though we have made the constructive suggestion on the basis of fair and reasoned arguments that the licentiates should think deeply over the matter of amalgamation and take early steps to bring it about, our contemporary charges us with failure to give counter or constructive criticisms. And at the same time our contemporary has resorted to destructive tactics and indulged in emotional outbursts which will do no good to itself or to the licentiates whose interests it professes to safeguard. That our appeal to reason has not fallen on deaf ears is evident from a letter we have received from one of the readers of both the Journals, who is himself a licentiate. We quote the following from that letter for the edification of our irate contemporary:

"That your impartial editorial should have caused the provocation of the Editor of the *Indian Medical Journal* is a psychological impossibility to imagine. To be frank, it is really surprising how the Editor is justified in attacking you in such a patronising manner in his editorial of the June issue—a routine which he always follows when he cannot answer point-blank."

May be our editorial has touched DR. KAPUR and his friends on their vital weak points. But we are confident that our opinion is shared by a very large majority of the licentiates, and that they will brush aside our contemporary's cheap jibe at us that we have made a sad confusion between intention and discussion, as contemptible.

the Editor of our contemporary as true or that it correctly represents what exactly took place at that meeting.

We also informed, on the other hand, by our readers who attended the session of the All-India Licentiates held in Calcutta that at the Conference itself everything was not smooth-sailing, that there was insistent and persistent demand for amalgamation, and we are told, subject to correction, that youth ranged itself against age and self-interest and demanded justice and fairplay. We trust that the Committee appointed as a result of this revolt would do its best to promote brotherhood among the profession in India and help in its unification and solidarity. Let not minor differences, even if there are any, be allowed to cloud the larger issue and prevent the fruition of unity and solidarity among the ranks which is the greatest need of the hour for the common good of all.

One word more before we close. Our contemporary flings the charge against us that our enthusiasm for amalgamation has overrun our discretion. We are not ashamed of our enthusiasm for amalgamation. Our contemporary's diatribe has not in the least affected our conviction in the matter. We are against isolation. It is dangerous. Unity is the need of the hour. What applies to bigger international issues applies equally to small things as well. The principle is the same.

We shall therefore plead, and continue to plead, with all the strength and earnestness we can command, for the amalgamation of the two Associations and shall not rest until that consummation is reached, unmindful of the loud vapourings of our contemporary, as we sincerely and honestly believe that amalgamation is the only way for the salvation of the licentiates. *Veritas odium parit*. We will not deviate from that right path.

The Scandal Continues

ONE more year has passed and we have again witnessed the sorry spectacle of hundreds of good, deserving young men turned away from the doors of the Madras Medical Colleges. Nowhere in the world does such a scandal continue. In our province, it has become plain that merit, proficiency in the subjects and scholastic brilliance are not recommendations for a student's admission, but such chance factors as caste, creed, community and place of birth are the deciding factors in admission to our Medical Colleges. Last year we appealed to the Government to recognize tradition and give preference to children of doctors in admissions to Medical Colleges, but the Government seem to have turned a deaf ear even to this suggestion and have allowed the same old principle to be followed this year also. Candidates who have passed the second group in the Intermediate in the first class were turned away. This is the only place where merit seems to be at a discount and is considered more a disability than an asset. We do not know how long this state of affairs will continue, but the sooner it is rectified the better it will be both for the profession and for the fair name of the Government.

It is the duty of Government to open more Colleges and admit more students in the existing Colleges when there is large demand for it. At present more medical men are required for the war. How can the Government of Madras be of help in this recruitment if the doors of Medical Colleges are to be closed to a large number of deserving and fit students?

In other countries, holidays have been curtailed, the teaching has been made more intensive, the course has been shortened, and a larger number of doctors are being produced, but in our country nothing of the kind is done. Even the relaxation of the rule made in regard to Arts Colleges owing to exceptional circumstances has not been applied to Medical Colleges. As we have pointed out last year there is enough accommodation in Tanjore and Guntur for the opening of Medical Colleges as in these places there were medical schools in pre-war days. The excuse that, during war time, equipment and personnel will not be available, cannot be maintained. It should not be impossible for the Government to acquire on the Lease Lend basis the necessary equipment and to release, in view of the improvement in the war situation, sufficient number of trained teachers from war work to satisfy the University's minimum requirements with reference to qualification for teaching. We hope that at least by next year these defects will be rectified and more colleges will be opened. We also hope that at least a certain percentage of the admissions will be made purely on the basis of merit irrespective of caste, creed or community and that a further percentage will be reserved for the children of medical men to keep up family tradition. Doctors serve the country and the Government and their services should be recognized at least by their sons and daughters being admitted into Medical Colleges. We trust these suggestions will receive the favourable consideration of the Government and the present Surgeon-General who differs from every one of his predecessors in outlook and sympathy and to whose sense of justice and fairplay the present restrictions and discriminations must be galling indeed.

*Gleanings From Medical Press

MEDICINE and THERAPEUTICS

The treatment of migraine.—Numerous drugs with different pharmacological actions have been used in the treatment of migraine e.g., acetylsalicylic acid, barbiturates, ergotamine tartrate and inhalations of trichloroethylene. The latest to be introduced and still on trial is urea.

There are many possible aetiological factors in migraine. Some may be allergic in nature. Dilation of the cerebral or cranial vessels may be the cause in some cases. Vaso-constriction may occur in others, and here nicotinic acid has been tried. Migraine has also been explained on the basis of increased intracranial pressure. Urea and possibly other diuretics may in such cases by their dehydrating action correct the temporarily disturbed balance that results in the migraine attack; the diet should be rich in protein and poor in fat and carbohydrate, free from salt and with restricted fluids.

The use of urea arose from an accidental cure by Brown (1943) of a patient who, having suffered from severe headaches for years, was being investigated with a view to a cerebral decompression being performed. The headaches disappeared when 15 grammes of urea were administered for a urea concentration test. Since then urea has been given to patients with migraine according to the following scheme: 20 gr.

twice a day for a week, subsequently 20 gr. daily in one dose for an indefinite period. The headache usually disappears after a short course of treatment or is modified sufficiently to become bearable provided treatment is not discontinued. Obviously much more investigation will be required to evaluate this use of urea. The compound is fortunately little, if at all toxic.—(J. Cape Town Post-Graduates Med. Assn.)

Acute lumbago.—The cause of the instantaneous onset of severe pain which is generally believed to be muscle spasm affecting small areas of the erector spinal or quadratus lumborum. Vigorous effort is quite unnecessary to give rise to it; even a small movement in changing posture may suffice, especially if the spine is in a twisted position or if there is any morbid condition of the facets of the intervertebral joints, of the intervertebral disks with or without prolapse of the nucleus pulposus, so that the vertebrae are not held firmly by the attached ligaments. The acute pain which is set up in the knee when a loose body or a thickened synovial fringe is caught between the articular surfaces is of the same nature. Another cause is believed to be herniation of fat lobules through small

apertures in the layers of deep fascia which have been demonstrated by biopsy. Local areas of inflammation which may be due to gouty deposits may be irritated by slight movement and an acute spasm results in adjacent muscle bundles. The relief obtained by injecting 10 or 20 c.c.m. of 1% novocain saline is due to relaxation of the spasm; suitable manipulation may produce the same result.—B.M.J.

Pathosis in subacute bacterial endocarditis.—A previously damaged valve or a congenital cardiac defect is a pre-requisite for the development of subacute bacterial endocarditis. Valves injured by previous rheumatic fever occur with greatest frequency, and the mitral and aortic valves, or both, are the seat of the disease far more commonly than are the valves of the right side of the heart. Numerous congenital defects have been found to permit the development of subacute bacterial endocarditis or endarteritis. Less common congenital cardiac defects which became complicated by subacute bacterial endocarditis are: The tetralogy of Fallot, pulmonary stenosis, patency of the ductus arteriosus associated with pulmonary stenosis, coarctation of the aorta (adult type) with bicuspid aortic valve, bicuspid aortic valve, and subaortic stenosis associated with a defective aortic valve. Syphilitic aortitis without involvement of the aortic valves is likewise occasionally the seat of subacute bacterial endocarditis. Arteriosclerotic valves only occasionally become the seat of subacute bacterial endocarditis.

Early in the course of the disease embolic detachment of the bacteria-bearing vegetations occurs. Their dissemination in the blood stream determines the site of their ultimate lodgement. Minute bacterial emboli are commonly transported to the arterioles of the skin, mucous membranes and retinae. They frequently occur in showers. Multiple emboli to the spleen are common. In addition to gross infarction of the kidneys they invariably reveal a characteristic embolic form of glomerulonephritis.—WILLIUS, F.A.: Cardiac clinics. CVIII. Subacute bacterial endocarditis: Pathology. Proc. Staff Meet., Mayo Clin. 19: 497—503, October 4, 1944.—U.S. Na. Med. Bull.

Cysticercosis.—During the last ten years there has been an increasing interest in the role of cysticercosis in the causation of fits. H. B. F. Dixon and W. H. Hargreaves (*Quarterly Journal of Medicine*, October 1944, 13, 107) have now published their observations on 284 cases. A definite history of infestation with tapeworm was obtained from seventy-seven patients. Practically the entire series (274 patients) were infected in India, and among the 269 soldiers or ex-soldiers in the series, there was only one officer. Nervous manifestations varied from typical Jacksonian seizures to transient monoplegias, parasthesias, localized anaesthesia, visual and auditory symptoms, aphasia, and amnesia. Although only fourteen patients (5 per cent. of the series)

showed signs of marked mental deterioration, it is stressed that alterations in personality and disorders of behaviour may occur in cysticercosis without epileptiform seizures. Diagnosis was most frequently first established by radiology, alone (188 cases) or combined with biopsy (24 cases), and it was established by biopsy alone in fifty-five instances. The cysts are usually about the size of a small bean, and a history of transient nodules under the skin was given by 165 patients. In a suspected case a wide X-ray examination of the whole body may be indicated, starting with the lower limbs. In thirty-two cases there was radiological evidence of calcified cysts in the brain. Should there be neither palpable cysts nor radiological evidence of calcified cysts in a suspected case, examinations should be repeated at six-monthly intervals, as there is sometimes considerable delay in the cysts becoming manifest. As a result of observations in fourteen patients, who were submitted to cranial surgery, it is felt that the only indication for such treatment is decompression to save sight. Only 10 per cent. of the cases showed an eosinophilia, and it was found that the findings in the cerebro-spinal fluid, complement fixation test and skin reactions were of little help. The incubation period from the time of infestation to the occurrence of symptoms varied from a few months to twenty years. The prognosis is better than was at one time considered to be the case: the mortality rate in this series was only 8 per cent., and only 8 per cent. of those still alive were showing any signs of deterioration.

Spontaneous pneumothorax in a child.—Spontaneous pneumothorax occurs much less frequently in children than in adults both young and old. The most common cause in all patients is rupture of a thin walled blebs, a bulla or a pulmonary cyst, either congenital or acquired at the surface of the lung. Blebs and even acquired cysts may be localized exaggerations of the lesions of a generalized pulmonary emphysema due to a check valve mechanism produced by localized swelling of the bronchial mucosa. They may be the results also of his intrabronchial foreign body or neoplasm or of extra bronchial pressure. Because of the thinness of their walls, some blebs and acquired cysts cannot be seen in roentgenograms made either before the occurrence of a spontaneous pneumothorax or after expansion of the collapsed lung. There is a strong tendency for spontaneous pneumothorax to recur in the course of months or years and occasionally the condition occurs in both sides of the chest.—J.A.M.A.

Myocardial involvement in subacute bacterial endocarditis.—Early reports dealing with subacute bacterial endocarditis gave the impression that the myocardium played an inconspicuous part in the disease. Clawson found inflammatory myocardial changes in 24 per cent. of the cases studied.

Except in two cases, in which polymorphonuclear cells occurred, the changes consisted of inflammatory exudates composed of large or small mononuclear cells. The myocardial changes consist of minute emboli, infarcts, abscesses, diffuse inflammation, Aschoff nodules and perivascular fibrosis. These authors are convinced that the myocardial damage is so extensive that it is remarkable that heart failure does not occur more frequently and more severely than it does.—**WILLIUS, F. A.**: Cardiac clinics. CVIII. Subacute bacterial endocarditis: Pathology. Proc. Staff Meet., Mayo Clin. 19: 497-503, October 4, 1944.—*U.S. Na. Med. Bull.*

Improved staining technic for malarial parasites.—Considerable difficulty has been encountered in obtaining satisfactory differentiation of malarial parasites in thick blood films stained with Wright's stain. Good results may be obtained on thick blood films if: (1) The red blood cells are hemolyzed in a fixing solution rather than in water, and (2) an acid water is used to dilute the Wright's stain and to wash the slide.

An acid water, prepared by adding 0.06 cc. (2 drops) 0.1 N HCl to 100 cc. of distilled water gave excellent results. The fixing solution was made by adding 1 cc. of glacial acetic acid to 99 cc. of 5 per cent. formalin immediately prior to use. If the solution was kept in a covered staining jar, it was satisfactory for a large number of slides.

The dried thick blood film was immersed in the fixing solution for 10 minutes and then washed in two changes of distilled water for 5 minutes each time. After the slide had thoroughly dried in air, the film was covered with Wright's stain for 1 minute. An equal amount of acid water was then

added and 10 minutes were allowed for staining. The slide was washed with acid water, dried, and examined.

With preparations treated in this manner ring-form trophozoites show clearly against a dusky blue background. The cytoplasmic circle is a sky blue, while the chromatin dot is definitely red and easily detected under the microscope. Developing forms, schizonts, and gametocytes are also distinct.—**GRAU, M. L.**: Simple acid water solution for better visualization of malarial parasites using Wright's stain for thick blood films. J. Lab. & Clin. Med. 29: 1103, October 1944.—(*U.S. Na. Med. Bull.*)

Mycotic aneurysms.—Mycotic or infective aneurysms of arteries and other vascular structures occur in both acute and subacute bacterial endocarditis. They are usually small, frequently involve more than one artery, and are rarely recognized during the life of the patient. Three essential modes of production have been suggested. The first concept states that the implantation of micro-organisms on the intimal surface of an artery, particularly at a point of bifurcation or at the point of issuance of an arterial tributary (but not necessarily so), results in local destruction of the arterial wall, particularly of the elastic lamina. The second concept considers the mural damage to be the result of infected emboli gaining entrance by way of the vasa vasorum. Finally, it is also possible for mycotic aneurysms to occur in arteries or other vascular structures by the direct spread of the infectious process.—**WILLIUS, F. A.**: Cardiac clinics. CVIII. Subacute bacterial endocarditis: Pathology. Proc. Staff Meet., Mayo Clin. 19: 497-503, October 4, 1944.—*U.S. Na. Med. Bull.*

SURGERY

Effect of cooling on wound healing.—Large and Heinbecker carried out experiments on dogs to study the effects of prolonged refrigeration on wound healing. They determined the nature of the healing process in clean incised wounds of the skin and subcutaneous tissues of the forelimb after cooling to 6 C. for a period of twenty-four to seventy-two hours, using similar incisions in the opposite limb as controls. The healing process was studied by measurements of the tensile strength and by microscopic examination of the wounds at varying intervals. The results show that during the cooling period there is no reaction on the part of the tissues to the injury inflicted by the incision and that subsequently there is a definite lag in the healing of the wounds, the degree of delay varying with the duration of the cooling period. In wounds treated by delayed suture after cooling for twenty-four or forty-eight hours the incidence of infection is much greater than in control incisions maintained at normal temperatures. The results of these experiments, together with those of Bruneau and Heinbecker, indicate that harmful effects result from prolonged refrigeration of living

tissue. It is felt, therefore, that refrigeration anesthesia is not ideal for amputations. If the aim is to diminish absorption from a gangrenous region by local cooling, this can be accomplished by refrigerating the limb below the desired amputation level in order that the anesthesia so induced may permit the application of a tight tourniquet. After restorative measures have been effective, amputation then can be carried out under ordinary anesthesia above the level of cooling without harmful sequelae. It has been suggested that wounds of the extremities incurred on the battlefield be refrigerated during transportation and until proper emergency surgical treatment and until instituted, an interval of many hours or even days. Because of the increased incidence of wound infection after the cooling period shown to occur in the described experiments, it is recommended that wounds sustained on the battlefield should not be treated by refrigeration unless there is no hope of saving the part.—*J.A.M.A.*

Malignant goiter.—Ward stresses the importance of knowing which types of goiter are likely to become malignant and which

signs should arouse suspicion of malignant change. Cancer is almost unknown in exophthalmic goiter. In the author's series of 5,439 thyroidectomies there were 168 cases of cancer. Only 1 of these occurred in the exophthalmic type. Almost all malignant goiters are nodular. The incidence of malignant goiter is influenced by the degree of endemicity and the frequency of nodular goiter in a given geographic locality. The preponderance of malignant goiter is in favor of women; but the expectancy for carcinoma in men with nodular goiter is much greater, 1 in 9 men coming to surgery. Of the three cardinal signs of malignant goiter—hoarseness, fixation and hardness—at least the first two denote a far advanced lesion. Any or all of these signs can be produced by benign growths. Carcinomatous and calcareous degeneration may occur in the same nodule and delay in removing it alters the prognosis unfavorably. Long standing or slowly growing tumors which suddenly undergo rapid growth and produce pressure symptoms are suggestive and should be extirpated before the clinical picture of malignancy develops. The author has found it practical from a prognostic and therapeutic point of view to classify malignant thyroid tumors according to their characteristics of growth and their microscopic architecture. He differentiates three groups: papillary carcinomas, malignant adenomas and all others. Prognosis is based on the time of diagnosis, the pathologic pattern and the presence of metastasis. Deaths are in direct proportion to the ease of diagnosis. Papillary carcinoma offers the best prognosis, and the degree of malignancy can apparently be estimated by the corresponding extent of departure from the papillary pattern. The prognostic evaluation of metastasis is similar to that in carcinoma of other organs, with the exception of rare dormant metastatic lesions in patients seemingly well years after operation and irradiation. Prophylaxis consists in the removal of nodular goiter so early that there is no pre-operative suspicion of malignant change. Statistics of 1 carcinoma in 9 men and 1 in 21 women operated on for nodular goiter substantiate the importance of this procedure. Suspected or diagnosed carcinoma calls for radical resection, always preserving at least one recurrent nerve, one parathyroid gland and both carotid arteries. Roentgen therapy can be used alone or in combination with surgery but should never be administered without the benefit of a biopsy report. Results may be expected to be good in the extremely radio-sensitive papillary carcinoma, fair in a small number of malignant adenomas and unfavorable in all others. The principal value of x-ray therapy lies in its administration post-operatively.—*J.A.M.A.*

Therapeutic injections in painful musculoskeletal disorders.—It is already well-known that procaine hydrochloride and other local anesthetics are useful in a variety of painful disorders. The field of

usefulness has been steadily extended to include acute and chronic musculoskeletal conditions, such as fibrositis, bursitis, neuritis and some cases of arthritis. This paper, based on observations in a number of patients with painful musculoskeletal disorders, indicates that results of therapeutic analgesic injections depend on a number of factors apart from technique. Among these are: (1) correct diagnosis and localization of the source of pain; (2) selection of suitable patients by excluding those with only subjective complaints, unless regional diagnostic block is effective; (3) recognizing hypersensitive individuals, psychogenic disturbances (painful neuroses, conversion syndromes) and evaluating response accordingly; (4) detection and proper interpretation of cutaneous hyperesthesia. As a result of these observations, the saline-procaine test, which consists of the consecutive injection of isotonic sodium chloride and procaine solutions at the site of soreness elicited by palpation, and the judicious evaluation of the patient's response, is recommended as an aid in the diagnosis and selection of patients suitable for therapeutic local and regional injections. (Steinbocker, O., *Journal of the American Medical Association* 125: 397, June 10, 1944).—(*U. S. O. W. I.*)

Surgery of thyroblossal cyst.—Any operative procedure on a thyroglossal duct cyst or sinus which fails to remove the entire tract results in failure, that is, recurrence or persistence of the draining sinus. Since the tract passes immediately below, above or more commonly through hyoid bone and through the middle of the tongue, and since it is not always possible at operation, because of its small size and friability, actually to trace the tract throughout its entire course, experience has proved that the radical operation of sistrunk is necessary for cure in a large percentage of cases. This operation consists in removing a cylinder of tissue immediately surrounding the normal pathway of the tract and including the central segment of the hyoid bone. The ends of the hyoid bone are approximated with stitches through the periosteum. Whether the union is a bony or fibrous one is not known; however, after operation there is no detectable evidence of disability from this source.—*J.A.M.A.*

Congenital syphilis.—Signs of congenital syphilis may appear, or at all events be brought to the doctor's notice, at almost any age. Disorganization of the bones of the nose is usually due to destruction by gumma formation, with resulting saddle-back deformity, and may occur at any age; occipital headaches may be due to neurosyphilis. Alopecia is rare in late congenital syphilis. Positive serum reactions usually tend to weaken or revert to negative with the lapse of time, but may persist throughout life.

Signs of congenital syphilis are usually

divided into early and late or tardy. In general, the acute signs are most commonly seen in infants, and correspond with the secondary stage of acquired syphilis; these include generalized rashes, snuffles, the aphonic cry, rhagades, enlarged spleen, osteochondritis, and pseudo-paralysis. In children the signs tend to become more localized and to affect single organs or systems. At this time the Hutchinsonian triad—interstitial keratitis, characteristic teeth, and eighth-nerve deafness—is most commonly met with, together with the typical facies, neuro-syphilis and signs of mental retardation. In the adolescent and young adult interstitial keratitis is the commonest sign, and in the adult bone and localized skin lesions predominate, corresponding with the tertiary stage of the acquired form. Active signs rarely appear after the age of 30, but many of the classical ones are permanent and persist throughout life. Serum reactions are almost always positive in the presence of active signs, but as the lesions tend to become localized and cease to progress, so the blood reactions tend to weaken. It is clear, therefore, that the older the patient the less the value of a negative reaction in excluding a diagnosis of congenital syphilis.—*B.M.J.*

Androgen control therapy in 130 cases of carcinoma of the prostate.

These authors employed castration singly or in combination with stilbestrol medication on patients with demonstrable metastases or with rapidly progressing lesions. Exclusive stilbestrol administration usually in dose of 1 mg. daily, was reserved for patients with low-grade malignant tumors with no demonstrable metastases, in whom little progression was anticipated. Stilbestrol medication alone was given also in patients who refused or who were unsuitable for orchidectomy. Obstructive symptoms were treated by the usual methods, such as indwelling catheter, suprapubic cystostomy or transurethral resection. Orchidectomy alone was carried out in 26 patients; 19 of them had metastases. In 48 other patients, 38 of whom had metastases, castration was either preceded or followed by stilbestrol administration. The remaining 56 patients received exclusive stilbestrol medication; metastases were found in 11 of these cases.

Analyzing the results obtained in their 130 cases, the authors say that favourable response was accomplished in numerous instances. However, prolonged observation revealed that in a considerable number initial improvement developed into delayed failures. Even the most spectacular improvement has to be viewed with scepticism as to the ultimate outcome. In patients with far advanced or metastatic disease, Androgen control treatment has prolonged life. The response to this treatment is much more impressive than the poor results accomplished by external or interstitial irradiation. Although improvement is of temporary duration only, the simplicity of the method and the low surgical risk involved

justify its use in combination with the usual methods in the treatment of high-grade urinary obstruction. The results were most favourable in the patients with metastatic lymph node involvement. Spread or local extension of bone metastases is not arrested by Androgen control treatment. Furthermore, this treatment does not protect the patient with non-metastatic cancer of the prostate from developing metastases at a future time. In spite of the apparent ineffectiveness of Androgen control therapy on the bone metastases, it cannot be denied that many of these patients derive temporary benefit, such as disappearance or improvement of pain, gain in weight, and increase in well-being. Androgen control treatment, and, particularly orchidectomy should not be carried out indiscriminately in all cases of carcinoma of the prostate. Castration should be reserved for patients with metastatic disease, patients in whom metastases are suspected, or patients with rapid enlargement of the primary lesion.—(Herger, C. C. and Sauer, H. R.: Surgery, Gynecology and Obstetrics 80:128, February, 1945)—*U.S.O.W.I.*

The use of curare in anesthesia: A review of 100 cases.—From a study of these cases, it appears that curare can be used by a competent anesthetist in almost every case. It will produce abdominal muscle relaxation during cyclopropane anesthesia at any time without the difficulty, delay, or complications of spinal block. Its only known complication is easily-treated respiratory depression. In the anesthetized patient, it can produce the so-called "spinal belly" as well as spinal block itself, but it is not a universal substitute for spinal block. In the hands of a trained anesthetist, who is able to perform artificial respiration, the rare myasthenia gravis is curare's only known contra indication.

Curare is believed to be of value in the treatment of laryngospasm, endotracheal intubation, esophagoscopy, and bronchoscopy (where it has been used with and without general anesthesia). Different viewpoints are held by various investigators with regard to the place curare is to occupy in modern anesthesia. The author continues to use it as indicated. At least one prominent worker uses it for almost all abdominal surgery; another restricts its use to cases in which it is really needed, maintaining that inadequate relaxation should be infrequently met and that curare is still a dangerous drug, not to be used indiscriminately by unskilled anesthetists. Thus, it may be used to permit a deliberate lightening of the plane of anesthesia throughout the operation, or it may be given during the course of cyclopropane anesthesia when the required relaxation cannot otherwise be as conveniently secured. Used in the former manner, it may permit the use of cyclopropane with fewer pulse irregularities, because of the smaller blood cyclopropane concentrations, maintained.

While the exact and complete pathologic change produced by curare is not yet known, most investigators seem to agree that it appears fairly certain to occupy a lasting place in the pharmacopeia of anesthesia. Cyclopropane-curare combined anesthesia may well become the method of choice for abdominal surgery.

Since submitting this article for publication, curare has been used in 332 additional operations. In some of the cases not included in this series, it was used in conjunction with ethyl ether, pentothal, ethylene, and local analgesia.

One hundred fifty-eight intravenous injections of curare were given to obtain relaxation in 100 abdominal surgical procedures. Single doses varied from 8 mg. to 100 mg.; the largest total dose used was 240 mg. Excellent relaxation was produced in 92 cases. Severe respiratory depression occurred in 12 cases. No other harmful effects were observed; the circulatory system appeared to be unaffected by therapeutic doses. When respiratory depression occurred it was always easily treated by artificial respiration. There were no fatalities attributable to curare. The average interval between the first and second doses in cases requiring more than one dose, when curare was used from the start, was 74 8/10 minutes. In 42.4 per cent of the cases in which curare was used from the start, the relaxation obtained from the initial injection persisted throughout the whole operation and was adequate for closure, so that a second injection was not needed.—(Cole, F. Anesthesiology 6:48, January, 1945).—*U.S.O.W.I.*

Tuberculous tracheo-bronchitis.—D. McCullough. *Dis. of the Chest*, 9: 448 (Sept.-Oct.), 1943.

1. About eleven per cent. of cases of tuberculosis of the lung parenchyma are complicated by tuberculous tracheo-bronchitis.

2. Acute endobronchitis may be of the ulcerative type, the hyperplastic type or a mixture of both. The smooth, fibrostenotic lesion represents the chronic stage.

3. The problem of tuberculous tracheo-bronchitis is largely one of mechanical obstruction and improper drainage of secretions.

4. The chief symptoms are cough, often severe and paroxysmal, wheezing, asthma-like attacks, fever of an intermittent type and dyspnea.

5. The significant physical signs are rhonchi and wheezing, plus signs of atelectasis in cases with this complication.

6. The most common x-ray findings are those of atelectasis, and check-valve or balloon cavity with a fluid level.

7. The diagnosis can be made with certainty only by bronchoscopy. A negative bronchoscopic examination does not eliminate the possibility of disease of the smaller bronchi.

8. As a general rule the treatment of pulmonary tuberculosis complicated by endobronchitis without stenosis should be that of a similar lesion not so complicated; if ulceration is present, local treatment with 30 per cent. silver nitrate is of additional benefit. For cases complicated by stenotic bronchial lesions thoracoplasty is the procedure of choice; local treatment through the bronchoscope of the stenotic lesion itself is often necessary as a supplementary or complementary procedure. Aspiration and drainage of blocked cavities may be indicated before, during or after thoracoplasty. Pneumothorax in the treatment of tuberculosis complicated by stenotic bronchial lesions gives disappointing results in the great majority of cases and its use is not without danger.—*E.E.N.T.*

Lempert fenestra nov-ovalis with mobile stopple: A new advance in the surgical treatment for clinical otosclerosis.—Lempert thinks that deafness suspected to be due to otosclerosis should be referred to as clinical otosclerosis, which signifies that the deafness is suggestive but not positive evidence of the presence of otosclerosis. He has treated 1,000 patients with clinical otosclerosis by fenestration of the labyrinth over a period of 7 years. Serviceable hearing for all social and economic purposes was restored and continuously maintained in a large percentage of the patients. Closure of the newly created fenestra by new bone formation and damage to the organ of Corti as a result of serious labyrinthitis were found to be the two major obstacles to the still greater success of this surgical treatment. Study of these two factors revealed that it is not necessary to keep the newly created fenestra continuously open in order to maintain the hearing improvement obtained following fenestration, provided the closure can be kept mobile. The Lempert fenestra nov-ovalis with a mobile stopple was evolved. This is a new technique based on a surgical principle different from any heretofore employed for the improvement of hearing in clinical otosclerosis. The newly created fenestra is immediately closed with a mobile cartilaginous stopple which simulates in function the normal stapodial footplate. The author is now employing this technique exclusively, because he is convinced that time and a large number of cases will eventually prove that both major causes of defect encountered with all previously employed techniques which were based on the principle of keeping the fenestra open, can thus be conquered. Excellent illustrations accompany the description of the operation for the creation of the fenestra nov-ovalis in the surgical dome of the vestibule. (Lempert, J. Archives of Otolaryngology 41: 1, January 1945).—*U.S.O.W.I.*

Strain of right rectus muscle simulating acute appendicitis.—E. Dean Babbage, C.W. McLaughlin, Jr., and R. L. Frum. *War Medicine*, V, 280, May 1944.

Various conditions affecting the musculature or the skeletal structures of the body may produce visceral symptoms. A most careful examination may be required in order that the correct diagnosis can be made. The particular syndrome of pain in the lower abdominal quadrant, produced by strain of the rectus muscles, has rarely been recognized in civilian practice.

The authors of this article have emphasized the difficulty of differentiating between a strain of the right rectus and acute appendicitis. The problem is made more acute by the fact that both conditions usually occur in young and active individuals. They have reported a series of 141 patients with strain of the rectus abdominis. The cases were collected, over a period of approximately nine months, in a large naval training station. Injection of 1 per cent. solution of procaine hydrochloride into the right rectus was suggested for all patients in whom acute appendicitis could not be excluded by the history or by clinical examination.

The procaine solution relieved the pain, if the primary pathology was in the abdominal wall, but failed to do so in acute appendicitis. Rest in bed proved to be the only satisfactory treatment for the patients with strain of the rectus muscles; the average stay in the hospital was five and eight-tenths days.

Hematomata of the right rectus abdominis muscle were common in the series, but aspiration failed to withdraw more than one or two cubic centimeters of blood. The condition required at least two weeks of rest in bed in the hospital for clinical recovery, and absorption of the hematoma required many weeks, after the patient had been discharged.—Edward L. Compere, M.D., Chicago Illinois.—*J.B.J.S.*

Accidental trauma and tumor metastasis—Benedict J. Toth. *Radiology*, XLII, 579, 1944.

Two cases are presented in which there appeared to be definite relationship between accidental trauma and the subsequent localization at the site of trauma of metastasis from pre-existing malignant neoplasms.

In one case, the primary lesion was a bronchiogenic carcinoma of the lung, and in the other a carcinoma of the stomach. The first patient suffered severe injuries to the right wrist and forearm, including a comminuted fracture of the radius an inch above the lower articular surface. This united, in

good position, but progressively more severe pain developed in the wrist, with a soft-tissue swelling along the radial aspect, and marked osteoporosis.

Exuberant callus developed, and later the soft-tissue mass surrounded the fracture site. Except for periostitis and osteoporosis no bony changes were demonstrable. At operation, a non-infiltrating circumscribed mass, loosely attached to the bone, was enucleated. It was found to be metastatic adenocarcinoma. A number of other metastatic nodules appeared in various locations. One, over the anterior aspect of the left leg, was believed by the patient to be the result of a slight bump several weeks earlier.

To help clarify the relationship between trauma and the development of the metastasis, an artificial trauma of the front of the right leg was produced by repeated blows with the wooden handle of a hammer. A hematoma was produced, but at post-mortem examination, more than two months later, no evidence of tumor at the site was found.

The second patient suffered a compression fracture of the first lumbar vertebra, and abrasion of the scalp. He had a small palpable mass in the epigastrium. Progressive pain in the lower back and ribs developed. A destructive lesion of the eleventh rib was discovered. Numerous nodular tumors developed in the thoracic wall and elsewhere. Death occurred three months following the accident. At autopsy, a fumigating carcinoma of the stomach was found, with many metastases affecting six ribs, both clavicles, the sternum, and the sixth and seventh thoracic vertebrae; but there was no evidence of tumor cells in the fractured first lumbar vertebra.

The seven postulates, set up by Segond and Thiem, Lubarsch, and Ewing as requirements to be fulfilled in the establishment of such causative relationship, were applied. It was found, in Case 1, that while the metastatic tumor was located at the site of the fracture of the radius, it arose in the soft tissues, with gradual involvement of the bone over a large area, after the soft-tissue mass had reached considerable proportions. The same picture developed in the other metastases overlying bone.

In both cases, one or more of the seven postulates failed of fulfillment. These findings are in agreement with those of other investigators of the same problem. The author concludes that there is little evidence of any connection between trauma and the location of metastases from malignant tumor.—Edward N. Reed, M.D., Santa Monica, California.—*J.B.J.S.*

DERMATOLOGY

Treatment of ring-worm of the scalp by synthetic oestrogenic substances.—Andrew Law (Medical Press and Circular 1943, June 2) says that it is well-known that the ring-worm of the scalp disappears spontaneously at puberty, due, apparently, to changes in the hair follicle taking place at that time.

It appears reasonable as a working hypothesis that these changes might be induced by the action of the sex hormones. In two boys, ages 5½ and 6½ and one girl, age 7½ ordinary antiseptic ointments had been used for many weeks without any result other than the steady advance of the disease.

At this stage ung stilboestrol was rubbed into the scalp daily for about a month, but without any apparent effect on the fungus. Administration of stilboestrol by mouth was then commenced at daily dosage of 0.25 mg. daily. The disease quickly ceased to spread at this dosage, but it was necessary to push it to 0.5 mg. daily to eradicate it. After about three weeks treatment at the higher dosage fluorescence of the patches and U. V. light examination had greatly diminished, and after a month treatment had ceased entirely. The hair grew rapidly, and there were no signs of inflammatory reaction, followed by falling of the hair, which accompanied the spontaneous cures. The only other treatment employed was the daily application of a small amount of weak ammoniated mercury ointment to prevent scattering of the scales. The hair was kept very short throughout treatment.—*G.P.*

Life cycle of fungi can be broken.

Fungus infections are so prevalent and frequently so severe that any suggestions on treatment should be reported. The acute dermatitis frequently observed and termed fungus infection should be treated like an infected second-degree burn and the fungus disregarded in this stage of its cyclic growth. The same sterile technic and drugs which are used in infected burns have a place at this time in the course of the disease.

The treatment is rest, hot compresses of boric acid in the daytime and at night 5 per cent. sulfathiazole ointment or sterile petrolatum, repeated daily until all redness and weeping disappears. The symbiosis of the gram-positive cocci and fungi must be destroyed. If cultures show streptococci, a course of sulfathiazole, 15 grains thrice daily for 5 days, is necessary. If the patient shows allergic response to the sulfonamide drugs, calamine ointment with zinc oxide 10 per cent. is used on the feet and sulfonamide orally discontinued. When the redness subsides the boric compresses are discontinued but the damaged skin is protected with the calamine ointment and 10 per cent. zinc oxide for 2 weeks.

The chronic stage is the only time to break in upon the life cycle of the fungus. After washing the feet, dry them thoroughly and immerse them in a solution of 25 per cent. ether in a 5 per cent. salicylic acid solution of merthiolate, covering in depth only the toes. The solution dries in from

3 to 5 minutes and socks and shoes are put on. Desquamation follows in 7 days and continues for about 7 days. Apply once a month thereafter. No recrudescence is found after 12 months. One case has remained well after 26 years' previous duration.—Lorance, L. M. Lieutenant Commander (MC) U.S.N.R.—*U. S. Na. M. B.*

Penicillin in infective dermatoses.—At a large military hospital Taylor and Hughes used penicillin in the treatment of sycosis barbae impetigo contagiosa, furunculosis and other varieties of the large group of eruptions known as the infective dermatoses. Penicillin was applied locally in various ways in an endeavour to find the most efficient and most economical mode of application. The preparations tried included crude penicillin filtrate in a base of equal parts of lanette wax, liquid petrolatum and water; calcium penicillin in a base of 30 per cent. lanette wax in water; sodium penicillin in a base of 30 per cent. of lanette wax; sodium penicillin in aqueous solution; penicillium mold of about fourteen days' growth, and penicillium mold crushed up in a base of 30 per cent. lanette wax in water. Before treatment the lesions were examined bacteriologically. Cultures on blood agar were made with a wool swab. The plates were incubated for twenty-four hours or longer, the organisms growing were identified and a rough colony count was made. All organisms grown were tested for sensitivity to penicillin, and all staphylococci had their coagulase production assessed. During treatment, daily cultures were made in a similar way. The authors found that penicillin is effective in the local treatment of certain skin diseases caused by cocci. The most satisfactory method of treatment of sycosis barbae and impetigo is to spray the lesions with an aqueous solution containing 200 units of penicillin in each cubic centimeter. An adequate dose of penicillin from the start is essential to prevent the development of penicillin-fast organisms. A strength of 200 units of penicillin in each cubic centimeter or 400 units per gram of lanette base seems to be sufficient. The pain in deep-seated lesions (furuncles) is much relieved after application of penicillin. An underlying seborrheic state in cases of sycosis and impetigo is liable to cause relapse soon after cessation of treatment and necessitates further courses of treatment. The appearance of penicillin-insensitive organisms indicates that further treatment with penicillin is of little value.—*J.A.M.A.*

OBSTETRICS and GYNÆCOLOGY

Maternal nutrition.—As a result of the studies which have been done by the author, she concludes that prenatal period is a very important period from the standpoint of nutrition and that is only good common sense to make it possible for every pregnant woman to have a diet to fit her needs and the needs of her unborn child in the interests of national health. Such a diet should

include daily one quart of milk, at least one egg or its equivalent, at least one quarter pound (113 grams) of meat, liver, poultry or fish or its equivalent, bread and cereal, preferably whole grain, at least four servings (one slice of bread or its equivalent—one serving), one medium size potato cooked in the skin, one serving of deep yellow or dark green leafy vegetable, a serving of legumes

several times a week, other vegetables including raw vegetables, so that at least two vegetables besides potato are eaten each day. Two oranges or their equivalent are necessary daily to meet the need for vitamin C. Some butter or its equivalent is desirable. The total food intake should be carefully adjusted to each individual case to produce the desired weight gain in relation to the woman's ideal non-pregnant weight. Some form of vitamin D in the latter months

of pregnancy is a desirable safeguard to both the mother and her infant. Effective and intelligent nutrition teaching during the prenatal period would be expected to result in lowered infant mortality and morbidity, especially in the neonatal period where the death rate is the highest of any period in infancy; it would bring about marked improvements in child health and development and in improved maternal health and mortality. (Burke: *Medical Woman's Journal*, October 1944).—U.S.O.W.I.

Correspondence

Misuse of the word "Debridement"

To The Editor, THE ANTISEPTIC, Madras. Sir.

I consider that the attention of your readers should be called to the fact that a number of English speaking Surgeons are misusing the word "debridement" with gay abandon under the misapprehension that it denotes excision and surgical revision of a wound.

I have again referred to my copy of "Chirurgie de la Main," "Premiere Partie,

Chapitre Premier, Exploration Systematique," 2nd sub-para. "Traitement de parties molles technique de l'excision," par Mars Iselin (Masson and Cie, 1938).

From the context it appears that M. Iselin does not consider that "debridement" includes "excision." M. Iselin is a distinguished French Surgeon and should be in a position to use his own beautiful language correctly.

INDIAN MILITARY } Yours truly,
HOSPITAL, POONA. } F. R. W. K. ALLEN.

Post-Graduate Lectures

UNIVERSITY OF MADRAS

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REFRESHER COURSE—JULY TO SEPTEMBER 1945.
PROVISIONAL PROGRAMME.

Dates.	Subject of lectures.	Name of lecturer.	Place of lectures.
I. Surgery.			
July 9—14	Gastro-Intestinal Surgery.	Doctor C.P. Visvanatha Menon.	General Hospital.
16—21	Modern Methods in the Treatment of Fractures.	Rao Bahadur Dr. M. G. Kini and Rao Sahib K.S. Narasimha Ayyar.	Stanley Hospital.
23—28	Surgical Emergencies.	Dr. C. P. Visvanatha Menon.	General Hosp. do.
II. Midwifery.			
30—4th August	Obstetrics & Gynaecology.	Major G. B. Thomas.	Maternity Hospl.
6—11	do.	Dr. R. K. K. Thampan.	R.S.R.M. Hospl.
13—18	do.	Major G. B. Thomas.	Maternity Hospl.
III. Medicine.			
20—25	Cardio-Vascular Diseases.	Rao Bahadur Dr. P. Kutumbia.	Stanley Hospital.
27—1st Sept.	Blood.	Rao Sahib Dr. D. G. Reddy.	General Hospital.
3—8	Gastro-intestinal Diseases.	Rao Bahadur Dr. P. Kutumbia.	& Med. College. Stanley Hospital.
IV. Venereal Diseases.			
10—15	Venereal Diseases.	Dr. R. V. Rajam.	General Hospital.

NOTE.—The course will consist of bedside clinics, clinical demonstrations, attendance at operations, etc., and lectures. Clinical demonstrations and operations will be given in the city hospitals during the hospital hours, and the lectures will be delivered between 6 and 7 p.m. at the places noted above. The programme is subject to alterations which may be necessitated due to unavoidable circumstances, of which due notice will be given.

An Addendum

In the article on "Sulphonamides in General Practice" published in the April 1945 issue of the ANTISEPTIC, on page 194 the words "Sulphanilamide Derivatives" under the heading "name of compound," before

the words proseptasine, Ruliazol A and solu-septasine should be added. Those three preparations are Sulphanilamide derivatives and not identical to Sulphanilamide itself.

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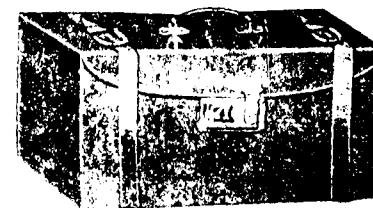
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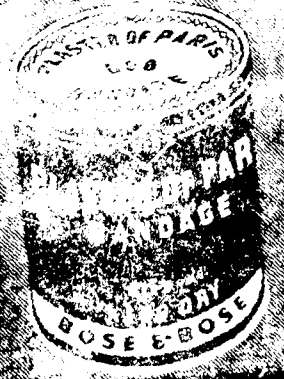
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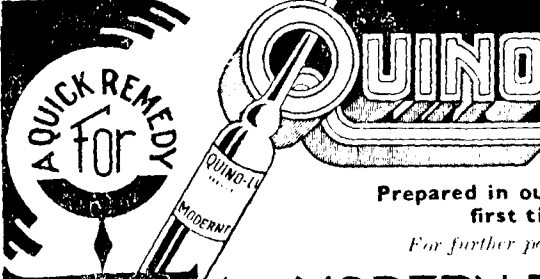
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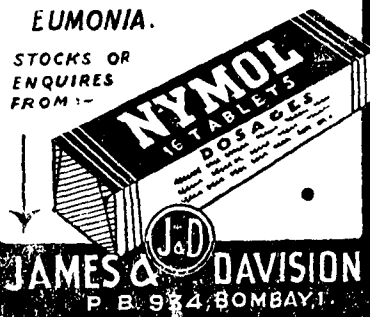
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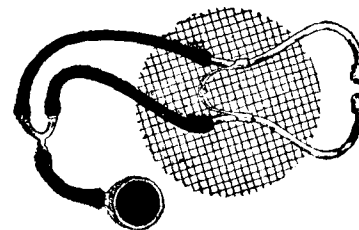
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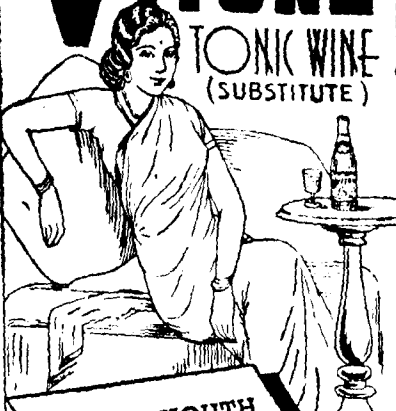


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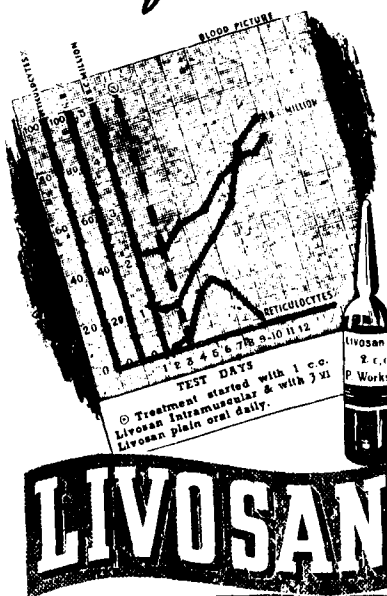
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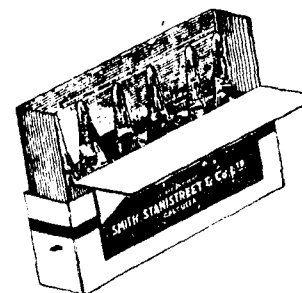
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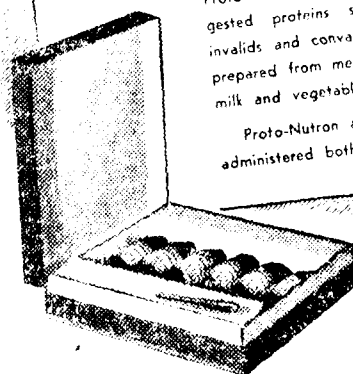
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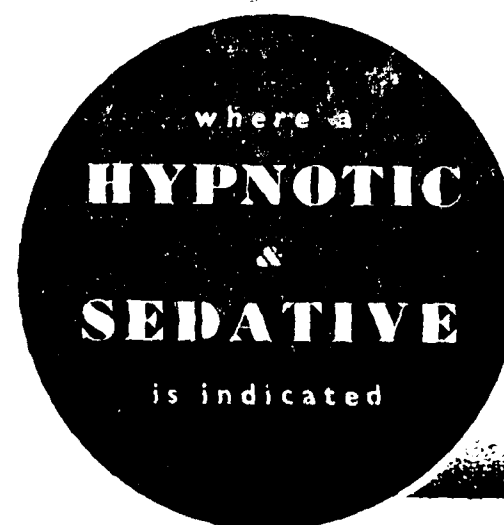
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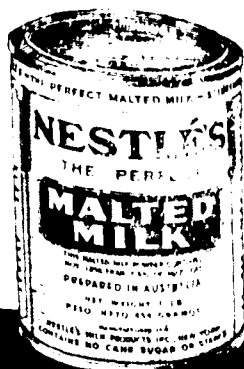
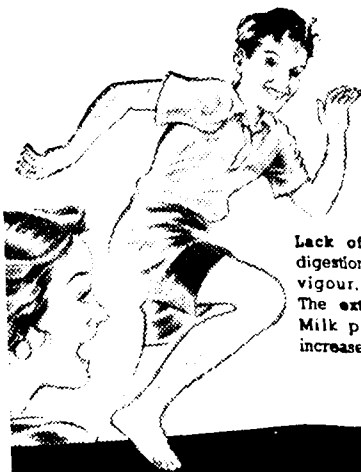
*for
abounding
health and vigour!*

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Lack of Vitamin 'B' results in impaired digestion and growth, loss of weight and vigour, fatigue, constipation and irritability. The extra Vitamin 'B' in Nestle's Malted Milk protects you from these ills and increases your vitality.



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EMULSION

Despite the speeding-up of modern life constipation still trails man.

In place of the perpetual enema, and the drastic griping purgative, we have the smoothly-acting palatable evacuant, Agarol Compound.

Agarol is a mineral oil emulsion with a small dose of phenolphthalein, which for many years has been of service for the relief of acute and habitual constipation.

The reliability of Agarol and the certainty with which it obtains results, without unpleasant after-effects or harm to the patient's alimentary system, make it suitable for use in any circumstances and at any age period.

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BRAND

(Salicyl, Hexamine, Caffeine preparation)

Ampoules of 5 c.cm. for Intravenous or Intramuscular Injection

Composition & Chemical Formula:

Each Ampoule of 5 c.cm. contains:

Hexamine 2.0 Gm.
Sodium Salicylate 0.5 " "
Caffeine Sodium Salicylate 0.2 " "
Aqua B.D. Distil Sterilized to 5.0 " "

INDICATION:

1. Infectious Inflammation of Urinary Passages.

E.g., Cystitis, Proctitis, Pyonephrosis etc.

CASYLOTROPIN is specially efficacious in Chronic Cystitis set up by Prostatic Hypertrophy and accompanied by alkaliescence. It is also used with success as a Prophylactic to prevent Cystitis after Prostatectomy.

One Ampoule of 5 c.cm. is injected every other day until urine remains permanently clear with acid reaction.

2. Infectious Inflammation of Bile Passages.

E.g., Cholecystitis.

One Ampoule of 5 c.cm. is initially injected daily when symptoms decrease, 5 c.cm. is used every other day.

3. Rheumatic Affections.

CASYLOTROPIN lessens the Swelling, leads to a rapid cessation of Pain diminishes the liability to Pericarditis and other complications of rheumatic cases.

One Ampoule of 5 c.cm. is injected twice a week or once a week according to the severity of the case.

Mode of Action

When Casylotropin is injected, the Hexamine is possibly split up in the system into Formaldehyde and Sodium Salicylate into Salicylic Acid. These split-up products act as formidable enemies to the causative pathogenic germs or bacteria responsible for the indicated diseases. The Caffeine moiety of Casylotropin keeps up the Heart and acts as a mild diuretic.

Clinical Results: Since the introduction of Casylotropin by the Medical Research Laboratory in the year 1934 extensive trial has been given by quite a large number of qualified Medical men in Bombay, Punjab, Delhi and in Bengal with uniformly successful results in varieties of complications indicated above. In cases of Cholecystitis Casylotropin is said to have acted like a magical cure.

About 75% swelling of knee joint and the acute agonising pain of the Rheumatic patients are said to have been removed by one or two doses administered intravenously by the Medical Officers of District Hospitals in Bengal. One course of 6 injections on an average, cured the patients permanently.

Packings: CASYLOTROPIN is supplied in boxes of 6 ampoules for Intravenous administration. Intramuscular packing with 6 additional ampoules of Procaine solution are also supplied.

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A most harmonious combination of IRON, ARSENIC and QUININE for Painless Intramuscular Injection.

Each 2 c.cm. ampoule of Ferarchin contains

Reinomy Soluble Organic Compd. of Iron gr. 1.00018 gm.
Quinine and Cinchonine gr. 0.03234 gm.
Alkaloid gr. 0.03234 gm.
Organic Salt of Arsenic (equivalent to Arsenious Acid) gr. 1.00000006 gm.
Urethane q.s.

Aqua (B.D. Distil and Sterilized) to 2 c.cm.

Use: Ferarchin is to be used in the acute & Chronic stages of Malaria including Malignant type with enlarged liver and spleen.

(i) In anemia arising out of repeated attacks of Malaria.

(ii) Ague and all other fevers with the exception of kala-azar.

Therapeutics: It has been established by clinical tests that:

(a) Ferarchin stops malarial fever even in cases where oral administration and injections of quinine hydrochloride fail.

(b) Acts directly upon liver and spleen to cause their abnormality to sink and even a most indolent liver is made to resume its normal function.

(c) Removes anæmia, increases red blood corpuscles, and causes a fresh supply of normal blood in the system.

(d) Stimulates in short, the whole system—a completely broken down system of malarial patients being reorganised.

Contra-indications: Ferarchin should never be used in case where arsenic administration is not desired.

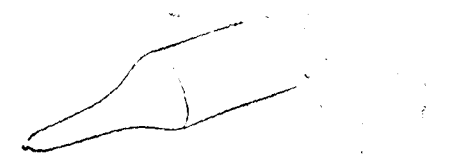
Doses: 2 c.cm. of the solution is to be injected intramuscularly in deep gluteal muscles at a time in an adult.

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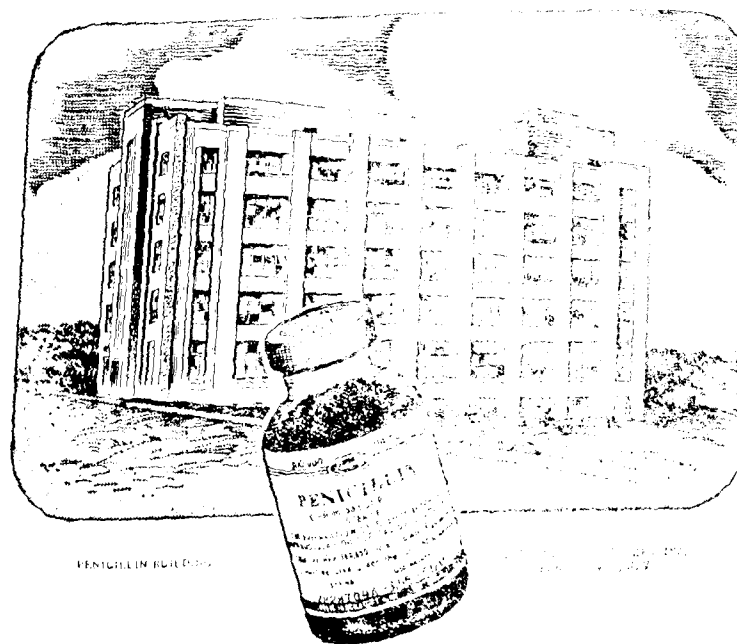


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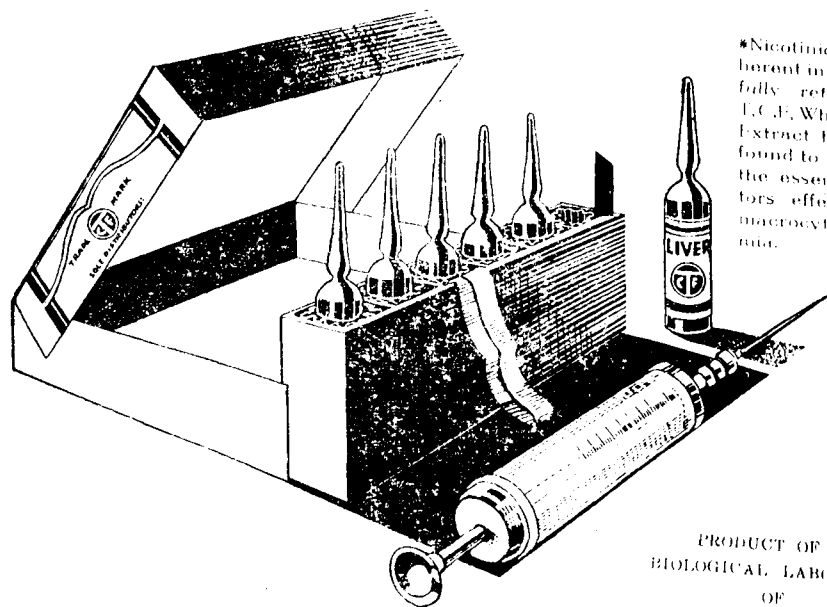
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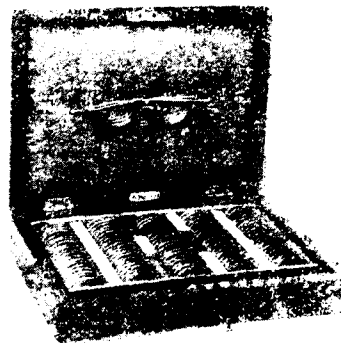
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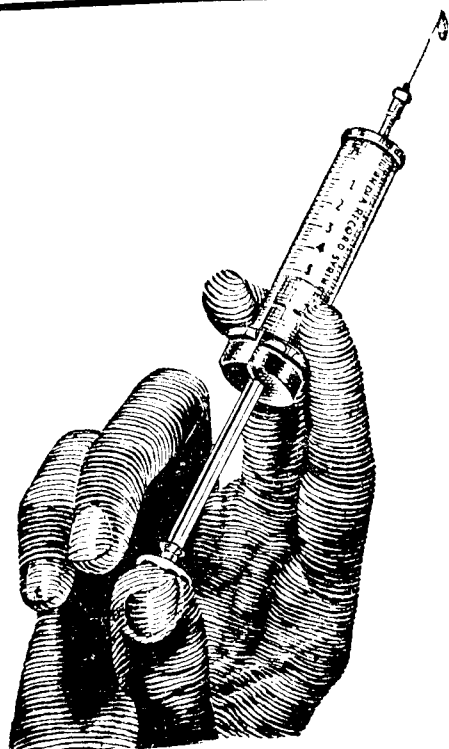
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products. In deficiency of B_1 Pyruvic acid accumulates more in the system. Action can be explained as follows—

(Glycogen) Glucose $\rightarrow$ Lactate $\rightarrow$ Pyruvate $\rightarrow$ Oxidation products— CO_2 , H_2O etc. Vit. B_1 action at this stage.

Normal value of pyruvic acid in blood is 0.4 to 0.6 mgm. per 100 c.c. which may rise upto 6 mgm. per 100 c.c. in a severe deficiency of B_1 . Daily need of B_1 in man is 1 to 3 mgm.

Deficiency effects:—Early lesions of this avitaminosis are biochemical in nature and cannot be recognised by ordinary methods of examination since they depend on altered cell physiology. The train of signs and symptomatology which suggest the deficiency of B_1 is as follows: Fatigue, lassitude, anorexia, palpitation, hyperæsthesia, precordial pain, burning of feet, dyspnoea on exertion, muscle cramps, tenderness in calf muscles, tachycardia, enlargement of heart, edema numbness and tingling, diarrhoea etc. Acute deficiency may produce Wernicke's syndrome (haemorrhagic encephalitis) and prolonged deficiency causes beri-beri, peripheral neuritis and anæmia.

B_2 -Riboflavin:—Riboflavin combined with phosphoric acid unites with a series of specific proteins to produce a group of enzymes—yellow enzymes which function as dehydrogenases. The yellow enzymes are present in all cells and are concerned with cell respiration. Its absence leads to cellular asphyxiation and cellular death. It is eliminated in urine as uroflavin. Daily need of this vitamin is 2 to 3 mgm.

Deficiency effects in man are: (1) Reddened lips with fissures at angles of mouth—cheilosis.

(2) Seborrhœic accumulations in nasolabial folds—dermatitis.

(3) Superficial vascularising keratitis etc.

B_3 , B_4 , B_5 : Exact nature of these vitamin components is not still clear and they are not still chemically identified.

B_6 Adermin:—Pyridoxine hydrochloride.

It resembles closely nicotinic acid and probably has similar intracellular action as a co-enzyme in animals.

In rats:—Deficiency produces epileptiform convulsions, acute necrosis of liver, degenerative changes in bone marrow with profound anæmia, aerodynia—peculiar skin changes etc.

In man:—Deficiency produces abdominal pain, difficulty in walking, nervousness, irritability, pigmentations, scaliness of skin, oedematous, glossitis, atrophy of papillæ of the tongue, erythema and cracking of skin etc. Daily need of this vitamin is 1 to 2 mgm.

B_7 Nicotinic acid:—The function of Nicotinic acid is less well understood. It is heat-stable substance forming an amide which is an essential grouping of two co-enzymes. These co-enzymes are thought to act as carriers of hydrogen, which is needed for the formation of water in the final step of carbohydrates oxidation. In addition nicotinic acid is probably concerned in water metabolism as suggested by water retention seen in deficiency states. Daily need of B_7 is about 50 mgm.

Deficiency of B_7 produces major manifestations of pellagra. They are (1) Redness atrophy and finally ulceration of skin and mucous membranes

dermatitis; (2) Peripheral neuritis; (3) Dementia; (4) Mouth often shows gross infection by Vincent's organisms; (5) Glossitis; (6) Necrosis of mucous membranes; (7) Loss of appetite; (8) Achlorhydria in some; (9) Diarrhoea; (10) Intense colitis; (11) Skin pigmentations etc.

Pantothenic acid Filtrate factor.

Bios II A

It is widely distributed in living cells and is essential for the growth of some bacteria. Its deficiency effects are chiefly studied in chicks and rats.

In chicks:—Deficiency produces severe dermatitis and some degeneration of myelin sheath of spinal cord etc.

In rats:—The hair follicles become atrophic, patches of fur lose their colour, become grey and fall out—achromatrichia. The rest of new factors are (I) Vit. H (Biotin bios II-B co-enzyme R); (II) Choline; (III) Inositol (Bios I); (IV) P aminobenzoic acid—anti grey hair factor).

The exact nature of these vitamins is not still well understood. Most of the factors of Vit. B group bear relationship to other members since many act as part of enzymes systems which regulate not only carbohydrate metabolism but utilization of fats and amino-acids as well. Such relationship may eventually be established for pyridoxine, pantothenic acid, biotin and others, but at the present time little is known of their physiological actions.

Causes of avitaminosis of B complex.—Deficiency may be: (1) Primary and (2) Conditioned.

Primary:—Primary in which there is an absolute deficiency of one or more vitamins in the diet, and intake being inadequate for the physiological needs, deficiency effects appear.

Conditioned:—Conditioned in which a pathological state established before signs of the deficiency arise, is primarily responsible for deficient intake, mal-absorption, failure to store, to elaborate and to utilise it. Deficiency is usually multiple and is more frequent in present days of restrictions and rationing. This deficiency is due to the following factors:—(1) Impaired intake; (2) Impaired absorption; (3) Impaired storage; (4) Impaired utilisation; (5) Increased exertion; (6) Increased requirements, etc.

1. **Impaired intake is due to:**—(a) Anorexia; (b) Persistent vomiting due to any cause, i.e., gastric, toxic, reflex, hysteric etc.; (c) Restricted diet and under-nourishment specially in gastric ulcers, diabetes, obesity, cardiac cases, nephritis, gallbladder diseases, colitis, dyspepsia, gastritis, surgical operation periods, old age, etc.

2. **Impaired absorption is due to:**—(a) Diarrhoea; (b) peptic ulcer; (c) colitis; (d) intestinal worms; (e) sprue-coeliac disease, steatorrhœa, etc.; (f) short circuit operations; (g) intestinal and biliary fistulæ; (h) intestinal obstruction; (i) pyloric obstruction stenosis; (j) achlorhydria; (k) aptyalism; (l) excessive intestinal putrefaction; (m) obstructive biliary disease; (n) chronic gastritis and allied conditions, etc.

3. **Impaired storage:**—(1) In liver diseases, cirrhosis, abscess, etc.

4. **Impaired utilisation due to:**—(a) Chr. alcoholism; (b) diabetes mellitus; (c) malignancy of stomach advanced; (d) hepatic diseases; (e) alkali therapy prolonged; (f) lead poisoning, etc.

5. *Increased excretion due to*:—(a) Diuresis; (b) polyuria; (c) diarrhoea; (d) lactation; (e) excessive perspiration; (f) external gastro-intestinal and biliary fistulas; (g) protenuria, etc.

6. *Increased requirements*:—(a) Prolonged fever; (b) acute and chronic infections; (c) pregnancy; (d) lactation period; (e) growing stage of children; (f) hyperthyroidism; (g) strenuous physical exercise; (h) heat exhaustion state; (i) high carbohydrate intake orally or when patient receives dextrose infusions; (j) shock therapy; (k) acidosis; (l) delirium and mania etc.

The above factors show that there are many conditions where the needs of vitamins increase. Often it is found that some individuals are able to maintain themselves at their own peculiar levels of metabolism without deficient lesions in spite of suboptimal vitamin intake; but when sudden illness develops or an operation is performed, the demand for increased energy production and added strain of sharply reduced intake, fever, operative trauma, glucose infusions, and vomiting etc., may quickly destroy the precarious nutritional balance and precipitate an acute avitaminosis, as an advanced complicating disease.

Diagnosis of acute avitaminosis. Diagnosis of this syndrome is often difficult because many of the typical anatomical changes of recognised vitamin deficiency are not seen so soon due to rapidity of onset. The usual peculiar symptoms may be useful but they are by no means specific as they are common to many conditions. Confirmatory tests though available are not suitable for most of the clinical laboratories and so one has to depend more on therapeutic tests for diagnosis. Response is rapid in acute cases while delayed in chronic deficiencies, as damage has already occurred.

The following are the chief features of vitamin B complex deficiency:

I. **Symptoms.**—Anorexia, nausea, vomiting, burning sensation in tongue, headache, malaise, sore mouth, burning in eyes, nervousness, mental depression, apprehension, emotional instability, confusion, fatigue, vague pains and aches, paresthesia, precordial distress, palpitation, vertigo on getting up, vasomotor instability, etc.

II. **Signs.**—*Alimentary system*:—Red rough tongue may show glossitis-stomatitis-ulcers on tongue—angular stomatitis-cheilitis—edematous hypertrophy of gums, diarrhoea, etc.

Circulatory system:—Tachycardia, enlargement of heart, dyspnoea—specific electro-cardiographic changes in all developed cases. E.C.G. shows low voltage, flattening of T waves, increase in Q-T interval. B.P. is often low.

C. N. S.:—Dementia, signs of peripheral neuritis in some cases, diplopia and features of (haemorrhagic) encephalitis (Wernicke's syndrome).

Skin and rest:—Aural and maler seborrhoea, pigmentations on skin, dermatitis—corneal vascularisation—blood may show nutritional anaemia.

III. **Laboratory findings.**—*Blood examination*: Pyruvic acid content in blood is 0.4 to 0.6 mgm. per 100 c.c. of blood in normal persons. In vitamin B deficiency pyruvic acid accumulates in blood and the total contents may go up to 6 mgm. per 100 c.c. of blood.

Urine examination:—(1) These vitamins are excreted in urine and so the estimation of these vitamins in urine is very useful in diagnosis. In deficiency the excretion of these vitamins is much reduced.

(2) *Folhard's diuresis test*:—In the morning one litre of water is given to the fasting person to drink. Diuresis is recorded half hourly for 4 hours, by which time all the ingested water will be excreted by a normal person (due to allowance made for sweating). In B₁ deficiency there is delayed excretion and this excretion is restored to normal by B₁ administration.

(3) *Glucose*:—Tolerance curve when taken resembled that of mild diabetic type of cure in B₁ deficiency persons.

Management and therapeutic uses.—It is always better to prevent than to cure and so daily intake of necessary amount of these vitamins must be well adjusted according to the varying needs of the persons.

When the patient shows deficiency features he must be given the required vitamin in adequate doses. If urgently needed intravenous administration must be resorted to. Exact dosage depends upon the condition of the disease and degree of deficiency. usual dose of vitamin B₁ being from 1 mgm. to 100 mgm. at a time, and may have to be repeated more than once in a day. It is better to give more than to give less, as no bad effects are still observed due to overdose of B₁, except developments of Herpes Zoster in some. For B₂, therapeutic dose of 5 to 30 mgm. daily is usually enough. For B₆, 5 to 10 mgm. dose and for B₁₂, 100 to 1,000 mgm. daily and repeatedly may have to be given. Doses are variable and one has to judge the then condition with all sorts of considerations. The response in cases where there is definite acute deficiency will be absolutely dramatic. Routes of administration depend upon diseases.

Therapeutic uses of vitamin B complex series.—Apart from absolute deficiency diseases due to them, the members of these series are also used in many other conditions with good effects.

Vitamin B₁ is also used in: (1) Pernicious and other nutritional anaemia; (2) sub-acute combined degeneration (high doses); (3) sciatica; (4) Landry's paralysis; (5) disseminated sclerosis; (6) toxic vomiting in pregnancy; (7) congestive failure of heart; (8) poliomyelitis; (9) anorexia; (10) alcoholic psychosis—Korsakoff's syndrome; and (11) some muscular dystrophies, etc.

Vitamin B₆—Adermin or Pyridoxin hydrochloride:—(1) Sydenham's chorea; (2) poliomyelitis; (3) non-specific paraplegia; (4) sub-acute combined degeneration; (5) Korsakoff's disease; (6) sciatica; (7) taboparesis; (8) disseminated sclerosis; (9) toxic vomiting in pregnancy; and (10) meningo-myelodystrophy, etc.

In case of central nervous system diseases it is given by intra-spinal route in 20 to 50 mgm. doses with promising results specially in Sydenham's chorea. It has also shown good effect in sciatica by spinal injection.

Pantothenic acid is used in arsenical hepatitis with good result.

Vitamin B₃ or Nicotinic acid is also used in: (1) non-specific diarrhoeas; (2) in neuralgia sciatica; (3) acts as dilator in bronchial asthma and coronary vessels; (4) acts as vaso-dilator of skin vessels; (5) acts in trigeminal or neuralgia in 200 mgm. dose daily; (6) works in all sorts of stomatitis; and (7) useful in Vincent angina in high doses, etc.

Conclusion. Before I conclude, I would like to mention that no other vitamin is so misused as the vitamin B complex. Every practitioner and consultant, I am sure, must be advising his patient some of

the B complex members often without any definite indication and only on presumption of it being deficient.

It is really a great economical loss to the nation when one drug, so costly, is wasted in "intestinal gutter," without any definite justification. It is the present day fashion perhaps to prescribe one or the other vitamin to give a final touch to the prescription. May I dare to ask how many of them are absolutely indicated? I am sure a very few. I often come across many a patient who is advised by his family doctors to take a course of liver ext. and vitamin B complex injections, and I have ascertained and investigated with all possible means at my disposal that hardly a portion of them comes within the relative indication zone. It is necessary that one thinks well before prescribing at random whether the patient really needs any of the vitamins or whether it will be of any good to him. If this much is done by all, I am sure vitamins will not have to be blamed for their failure in action, and we shall be able to prevent a huge economical waste and loss to the nation.

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2. Mason. Recent Advances in Pathology, 1943.
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Angioneurotic Oedema*

N. K. RAY, M.B. (CAL.).

Jibon Babu's House, Dacca (Bengal).

Definition.—It is a condition characterised by paroxysmal attacks of localised or patchy oedematous swelling of the skin, subcutaneous tissues or mucous membranes appearing spontaneously with an early or simultaneous development of itching or urticaria.

Nomenclature.—General attention was not called to the disease until the description by QUINCKE in 1882, whence the name Quincke's disease. Many other names, *viz.*, giant urticaria, urticaria tuberosa, urticaria oedematosa, wandering oedema, intermittent oedema, etc., have been suggested from time to time by different authors.

Etiology and pathology.—The disease is not uncommon. It occurs equally in both sexes and at any age. Various factors, *eg.*, infections of the teeth, tonsils, accessory air sinuses, kidneys, appendix, gall-bladder and others, intestinal putrefaction as in stasis, gastro-intestinal disturbance, errors in diet, exogenous or endogenous poisons, allergy or inborn sensitivity, or more of them is usually at fault. The oft-recurring urticaria or oedema purpuric and allied skin rashes in jaundice provides evidence in favour of hepatic poisons. In subjects of allergy which mostly runs in families, the digestion is often impaired. The liver function fails to cope with the incomplete products of digestion. According to Brown these products of incomplete combustion are histamine-like substances. In persons thus affected they do not undergo destruction, as they normally do, due to an inborn deficiency or histaminase; the toxins thus liberated enter the

* Specially contributed to THE ANTISEPTIC.

AUG. '45]

circulation and in certain areas a vulnerability of the capillary endothelium which permits of an exudate at so rapid a rate that the efferent channels cannot deal with it, and in consequence the lymph spaces are distended and the skin or mucous membrane swells producing oedema and/or urticaria. Why this should occur in the lip to-day, in the gastric or intestinal mucosa the next week, and on the hand next month—why it should come on in a perfectly healthy person and recur at intervals of a year or two and disappear completely, or why the liability should occur in families but only in certain members, and be transmitted for a few generations—these are questions for which we have as yet no answer.

The clinical features:—The patient is usually a young adult of either sex. He complains of one or more mild, moderate or severe attacks of oedema. The parts mostly affected are the face, the extremities, the mucous membranes of the mouth, tongue, stomach, intestines and the respiratory passages. The brain, conjunctiva, kidneys, urinary bladder etc., are rarely involved. The general health is not usually disturbed. The limb involved becomes swollen, heavy, tense, and probably a little painful, especially during attempts at movements. Pricking sensations, a sense of burning heat and itching are common. Excessive itching sometimes produces petechial spots. Depending on the laxity of the tissues, the appearance of the skin may be soft and puffy, pitting deeply on pressure (as in the case of eye-lids) or firm and not pitting at all (as in the lips etc.). The skin is usually anemic and smooth: when the oedema is persistent and the skin poorly nourished, loose and sensitive blebs may form. The temperature is not usually raised and, indeed, may be lower than the corresponding healthy part. The area which is first affected is also first to be relieved. As the swelling subsides the skin becomes relaxed and wrinkled. From the mildest cases, *e.g.*, the swelling of one finger or an eye-lid, severest cases, *e.g.*, oedema glottis with acute dyspnoea necessitating immediate tracheotomy are met with. In those where the mucous membrane of the alimentary tract is involved, the patient complains of agonising pain in the abdomen, which may be 'dry' or associated with vomiting and diarrhoea. In a considerable number of such cases laparotomy has been performed with an erroneous diagnosis of appendicitis, intussusception or cholecystitis. In females, the attacks are more likely to occur during their monthly periods or at the climacteric.

Case notes:—N. R., a Hindu male of 30 years, a medical practitioner in the city of Dacca, came to my chamber during the early summer months of 1941 with the following complaints: (a) Oedema of the dorsum of the right hand—2 to 3 days; (b) Constipation—7 to 10 days.

History of illness:—The patient said that about a week back he noticed some stiffness of the right pectoral region with a slight pain therein during movements. Thinking it to be a simple muscular pain due to irregularities in taking exercise, he began in right earnest his daily exercises and massage of the affected area. These made him still worse. Massage and exercise were given up. On the third or the fourth day of the attack, the uneasiness in the pectoral region disappeared but presented itself in the form of an oedematous swelling in the right arm. The overlying skin was red and hot. The oedema gradually descended from the right arm down to the right hand and the fingers, the intervening joints escaping. 'Chun' (Calcium-Hydroxide) was first applied to the area with some temporary relief but as pimples began to appear, it was stopped. Some senior medical

practitioner was consulted who advised him a course of Soamin injections. Accordingly, bi-weekly intramuscular injections (two $\frac{1}{2}$ gr. each, two 1 gr. each and four 2 grs. each, making a total of 11 grains) were taken. This showed no improvement whatsoever and he sought my advice.

Past history.—Suffered for about a month from an attack of similar swelling of the right leg twelve to fifteen years back which was cured by domestic medicines. Also he had measles-like eruptions all over the body with intense itching and erythema lasting for less than a week once about seven years back and again a few days before the present complaints started. During the former attack a few bitter herbal pills were prescribed by some *Kaviraja*, while in the second attack subcutaneous injections of Adrenaline (1 in 1000) 0.5 c.c. was resorted to. Both relieved him to a great extent.

About 4 years back, a few weeks before his final medical examination in the year 1939, he suffered from an acute attack of appendicular pain which subsided within a few hours with rest and fasting followed by a course of emetine injections and Calomel-ipeccacuanha pills.

Personal history.—Married; suffered from chronic amoebic dysentery and occasionally from throat troubles; no history of any addiction.

Family history.—Mother was a chronic sufferer from similar oedema which is peculiar in the sense that it never disappeared completely. She was also a chronic sufferer of amoebic dysentery. She had a severe attack of biliary colic; also one or two attacks of spontaneous ecchymosis.

On examination—Local.—Oedema of the dorsum of the right hand extending towards the thenar eminence. There was flushing of the overlying skin which was slightly more hot than the corresponding part of the other hand; it was smooth and not thickened. It pitted on pressure. The axillary and the epitrochlear glands on the same side were palpable and to some extent tender.

General.—Nothing abnormal except a thickened and loaded colon and a just palpable liver. Examination of midnight blood. No microfilaria, leucocytosis or eosinophilia. Sedimentation rate—Not seen.

The patient was advised to have his stool examined. Meanwhile he went to some neighbouring village on a professional call for two days, where the oedema entirely disappeared only to reappear within a day or two of his returning home. Unfortunately the stool could not be obtained this time for examination. A smear from the throat showed streptococcus haemolyticus on a previous occasion.

Diagnosis.—Angioneurotic oedema was localised, transitory and recurrent. Oedemas due to diseases of heart, kidneys or localised oedema of thrombosis are not difficult to diagnose. Milroy's oedema was confined to the legs, and was hereditary. The abdominal variety was suggestive of an acute abdominal lesion but there was no fever and a history of previous attacks affecting the skin, the family history and the transient character of the attack might all afford the clue to the diagnosis. The most serious internal complication of the larynx was easily recognised, as it rarely occurred alone, but commonly in association with swelling of the lips or face.

Prognosis.—The attacks usually recur. In young adults the outlook is good. The chances of cure become less and less as the age as well as the

disease advance. There is no immediate danger to life except from oedema of the glottis when adrenaline therapy failing, tracheotomy must be resorted to.

Treatment. As regards treatment, I advised this particular patient as follows:—

A. MEDICINAL.—(1) a Saline purgative to start with; (2) fresh extract of Kakamegh (a cholagogue)—two tea-spoonful once every morning on an empty stomach; (3) enteroviform (Iodochloroxyquinoline)—One tablet to be taken half an hour after meals twice daily for ten days, then one week's rest to be followed by another ten days' medication.

B. DIETETIC.—A thorough change in the usual diet of the patient and avoidance of too much cereals, eggs, crabs, lobsters, 'Hilsa' fish, coffee, etc.

C. CLIMATIC.—Change of place, especially to mountain air, if possible.

Here, I must say that the patient thoroughly followed my advice regarding medicine and diet and was perfectly cured. Encouraged by this result he asked his mother also to consult me. I treated her with a course of six Emetine injections ($\frac{1}{2}$ gr. P. D. & Co.) and acholagogue mixture and she too was greatly relieved of her long standing, troublesome malady.

Cases of severe itching should be given immediate relief, if possible, with injections of liq. Adrenaline Hydrochlor (1 in 1000) 0.5 to 1 c.c. and local application of lotion calamine or lead and tar lotion to be followed by large doses of Calcium by mouth (preferably Calcium Lactate gr. 20 T.D. with gr. $\frac{1}{2}$ Ephedrine Hydrochlor per dose) or parenterally in divided doses. Those in which oedema have persisted for weeks or months are much more difficult to treat, and often the cause is never determined. In dealing with such cases a series of simple diets must be given to eliminate the possibility of food being the cause, and, if necessary, a period of starvation may be advised as an aid to the dietary investigation. Areas of focal sepsis, *viz.*, teeth, tonsils, accessory air sinuses, etc., must be sought and dealt with, if present. Free elimination must be encouraged by diuretics, an adequate supply of fluids and saline purges. If no cause is discovered, non-specific desensitization may be attempted, either by giving 5-10 grs. of Peptone powder half an hour before each meal, by a course of Peptone or milk injections or by autohæmotherapy. Autohæmotherapy is a simple method; 5-10 c.c. of blood are withdrawn from the patient's vein and at once injected into his gluteal muscles; this can be repeated every week until three to six injections have been given. Cutaneous scratch tests with foreign proteins seldom provide any evidence and frequently the results of therapy do not correspond to the results of the test. Ephedrine alone is sometimes helpful. Mixtures containing intestinal ferments added to the diet give occasional relief. Some advocate increased alkalisation of the blood by large doses of Potassium Citrate and Carbonate. RUSK and KENAMORE have obtained favourable results with the administration of a diet rich in Potassium and poor in Sodium. Many other medicines have been recommended, Morphine, Bromides, Salicylates, Antipyrin, Belladonna, Ergot, Suprarenal, Thyroid, etc., and in obstinate cases it is only natural that all sorts of drugs should be given a trial.

Late SIR W. OSLER found two drugs to be of service; Glycerine or the Nitrites, given in gradually increasing doses until the patient feels the flushing and the headache.

In children with periodic attacks of colic, grey powder given for a week or so at a time has seemed helpful. Elastic pressure and elevation yield little benefit.

Conclusion.—Aetiology, pathology, signs, symptoms, diagnosis, prognosis and treatment of angioneurotic oedema has been discussed in some detail. A case note with its successful treatment has also been given. Diet, intestinal amebiasis, irregularities of the bowels and consequent obstruction to free elimination and inefficient liver drainage are thought to be possible contributing factors in angioneurotic oedema. Mental stress and strain might precipitate an attack. In the case mentioned change of place alone brought about a temporary cure of oedema which is to my mind due to consequent change in the diet and climate.

My thanks are due to Mr. SUKIAL SAHA for his kind help.

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Studies on the Administration of Vitamin C and Yeast On Urinary Excretion of Ascorbic Acid* In Normal and Tuberculous Subjects.

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SINCE HOJER (1924) and BIELING (1925) showed that the scorbutic state increases susceptibility to tuberculosis, more attention has been directed on this vitamin. PERLA and MARMORSTON (1937) recognised the literature effect of vitamin C on increasing resistance to tuberculosis and ascribed it to the part this vitamin plays in the oxidation-reduction processes in cellular metabolism and in the production of the intracellular cement substance. In addition RAI and KEHAR (1944) found that vitamin C exercises a favourable influence on the assimilation of Calcium. Subsequent reports have indicated that tuberculosis itself depresses the vitamin C content of the blood and tissues. SWEANY ET AL (1941) pointed out that the severity of tuberculosis is paralleled by the "exhaustion" of vitamin C in the body fluids and that a large supplementary intake of vitamin C is necessary to restore the normal level. BANNERJEE ET AL (1941) suggested that the low excretion of vitamin C in the urine of tuberculous subjects may be due to its combination with toxins and toxic metabolites.

In view of the significant effect of vitamin C upon tuberculous conditions, it was considered desirable to study the urinary excretion of vitamin C in normal and tuberculous subjects under different Indian dietary conditions, and to determine whether certain food factors exert a vitamin C-sparing action.

* Specially contributed to THE ANTISEPTIC.

† Research Scholar.

Methods and material.—The patients selected for these observations were men and women of different ages living under ordinary urban conditions. They were regularly visited and treated in their respective homes. The chief symptoms shown by the subjects were pyrexia, anorexia, toxæmia and distressing cough with occasional hæmoptysis and diarrhoea. They were divided into 4 groups. Each group contained also a similar number of apparently healthy persons approximately identical in age and social and economic status.

The subjects of the first group lived on an average quality diet without citrus fruits, whereas the diet of the second group included lemon and spinach and that of the third and fourth groups was supplemented with Ascorbic acid (single dose of 500 mg.) and Ascorbic acid and Yeast respectively.

Urine collections were made for 24 hours in Winchester amber-coloured bottles containing 100 c.c. of concentrated Sulphuric acid mixed with 100 c.c. of water as a preservative, as suggested by BANNERJEE ET AL (1941) who found it superior to other preservatives. Ascorbic acid was estimated by titration against 2:6-dichlorophenol indophenol in the usual way. In the case of groups 3 and 4 the estimations were made once before the administration of the massive dose of Ascorbic acid and twice on two successive days thereafter.

Results and discussion.—The results of the urine examinations of normal and tuberculous subjects for vitamin C (group 1) are given in Table I (*vide page 416*). It will be observed that, whereas the diet in both the cases was identical, the average daily excretion was lower in those affected with tuberculosis. These observations are in conformity with those of HEISE and MARTIN (1936), JETTER and BUMBALO (1938), SINGER and VAN BARK (1938), BAKSH and RABBANI (1939), CHAN and LAN (1940), and BANNERJEE ET AL (1941). It may, however, be pointed out that the average amount of ascorbic acid excreted by normal persons in these observations is less than that shown by BANNERJEE ET AL (1941). It is difficult to assess the significance of these variations in the absence of any details by BANNERJEE ET AL of the dietary intake. The average intake of vitamin C of our subjects was about 15 to 25 mg. per day.

Although KELLIE and ZILVA (1939) pointed out that remarkably good health can be maintained on 15 mg. of vitamin C daily, CRANFON ET AL (1940) found that the maximal utilisation of vitamin C lies between 30 and 45 mg. per day. The Editor of the *British Medical Journal* (1942), however, considered 50 to 60 mg. daily as the normal requirement. Investigations by ORR (1936) and CRAWFORD and BROADLEY (1938) indicated that the diet of one half to three quarters of the population of Great Britain contains inadequate quantities of vitamin C. There are, of course wide variations in the extent to which individuals will tolerate low vitamin C diets. JENNINGS and GLAZEBROOK (1938) described a man who had subsisted on a scorbutic diet for 40 years before showing any ill effects. On the other hand, children have been known to develop scurvy while receiving generous supplements of vitamin C, such as orange juice.

The evidence that vitamin C exerts a beneficial effect in cases of actual illness is not conclusive. Fresh fruits and their juices and black currants have long been common household remedies for simple acute infections. Low levels of vitamin C have been found in many ailments. In some

instances the vitamin C level has been found so low that it has been thought to have some ætiological significance (GLAZE BROOK and THOMSON 1942, CLAUSEN (1934), WILSTÄDT (1935), KING (1936), WRIGHT (1936), EDDY and DALLDROF (1937), and PERLA and MARMORSTON (1937) recognised that an inadequate amount of vitamin C in the diet causes a lowering of resistance to tuberculosis. Hopes that saturation with the vitamin would cure such diseases have, however, not been realised (HEISE and STEENKEN, 1939, and GLAZE BROOK and THOMSON 1942, though an acceleration of healing or a general improvement in cases of tuberculosis as the result of vitamin C administration have been claimed by RADFORD ET AL. (1937), ALBERCHT (1938), BAKSH and RABBANI (1939), WARNS (1938), BIRKHANG (1939) and STEINBACH and KLEIN (1941).

TABLE I.
Urinary excretion of Vitamin C in normal persons on an average diet.

Serial No.	Name	Age	SAMPLE I.		SAMPLE II.		REMARKS
			Quantity of urine passed in 24 hrs.	Vit. 'C' excretion in 24 hours.	Quantity of urine passed in 24 hours.	Vit. 'C' excretion in 24 hours.	
1	R.R.C.	24	1,300 c.c.	36.4 mg.	1,000 c.c.	38.0 mg.	Diet: Wheat bread, pulses, milk and vegetables.
2	D.C.	24	1,200 c.c.	28.8 mg.	500 c.c.	20.0 mg.	
3	D.R.	20	900 c.c.	16.2 mg.	900 c.c.	25.2 mg.	
4	B.S.	24	1,000 c.c.	20.0 mg.	600 c.c.	20.4 mg.	
5	K.B.	28	1,200 c.c.	36.0 mg.	1,100 c.c.	33.0 mg.	
6	H.R.	20	1,300 c.c.	39.0 mg.	500 c.c.	25.0 mg.	
Average			...	29.4 mg.		26.9 mg.	

Urinary excretion of Vitamin C in cases of pulmonary tuberculosis.

Serial No.	Name	Age	Quantity of urine passed in 24 hrs.	Vit. 'C' excretion in 24 hours.	Quantity of urine passed in 24 hours.	Vit. 'C' excretion in 24 hours.	REMARKS
1	D.	38	780 c.c.	15.0 mg.	700 c.c.	14.1 mg.	Diet: Wheat bread, pulses, milk and vegetables.
2	B.D.	34	990 c.c.	19.8 mg.	1,000 c.c.	25.0 mg.	
3	M.S.	20	575 c.c.	9.2 mg.	600 c.c.	16.2 B mg.	
4	G.	16	800 c.c.	16.0 mg.	1,000 c.c.	14.0 mg.	
5	J.R.	24	1,000 c.c.	18.0 mg.	500 c.c.	20.0 mg.	
6	F.R.	28	1,200 c.c.	14.4 mg.	900 c.c.	18.0 mg.	
Average			...	15.4 mg.		17.9 mg.	

intake of vitamin C either from citrus fruits or pure ascorbic acid on the excretion of ascorbic acid in the urine and on the general condition of tuberculous subjects.

In the second group, therefore, the diet of the subjects was supplemented for about a fortnight before estimating the ascorbic acid with lemon juice and spinach which furnished about 40 to 60 mg. of vitamin C per day. It will be observed from Table II that the ascorbic acid excretion increased considerably in both the normal and tuberculous subjects, though it was proportionately more in the normal than in the tuberculous subjects.

TABLE II
Urinary excretion of Vitamin 'C' in normal persons on an average diet, supplemented with lemon juice and spinach

Serial No.	Name	Age	SAMPLE I		SAMPLE II		SAMPLE III		Remarks
			Qty. of urine passed in 24 hours.	Vit. 'C' excretion in 24 hours.	Qty. of urine passed in 24 hours.	Vit. 'C' excretion in 24 hours.	Qty. of urine passed in 24 hours.	Vit. 'C' excretion in 24 hours.	
1	O. P.	26	600 c.c.	49.8 mg.	700 c.c.	70.0 mg.	550 c.c.	66.0 mg.	Diet:—Wheat bread, pulses, milk and vegetables. Given lemon and spinach.
2	D. C.	26	800 c.c.	38.4 mg.	1,000 c.c.	89.0 mg.	800 c.c.	96.0 mg.	
3	B. S.	24	850 c.c.	70.0 mg.	600 c.c.	72.0 mg.	800 c.c.	79.2 mg.	
Average			...	52.7 mg.		77.0 mg.		80.4 mg.	

Urinary excretion of Vitamin 'C' in cases of Pulmonary Tuberculosis on an average diet supplemented with lemon juice and spinach

Serial No.	Name	Age	Quantity of urine passed in 24 hrs.	Vit. 'C' excretion in 24 hours.	Quantity of urine passed in 24 hrs.	Vit. 'C' excretion in 24 hours.	Quantity of urine passed in 24 hrs.	Vit. 'C' excretion in 24 hours.	REMARKS
1	B. D.	48	1,130 c.c.	13.5 mg.	1,300 c.c.	26.0 mg.	1,100 c.c.	33.3 mg.	Diet:—Wheat bread, pulse, milk and vegetables. Given lemon and spinach.
2	M. D.	16	615 c.c.	15.0 mg.	800 c.c.	32.0 mg.	800 c.c.	10.4 mg.	
3	N. K.	32	635 c.c.	40.1 mg.	1,400 c.c.	42.0 mg.	1,100 c.c.	32.0 mg.	
			Hæmoptysis		Hæmoptysis				Hæmoptysis on 29-7-1942 and 31-7-1942.
Average			...	22.9 mg.		33.3 mg.		25.2 mg.	

If, however, a massive dose (500 mg.) of ascorbic acid is given and the excretion of this acid estimated in the urine for two successive days (group III), it will be observed from Table III (*vide* page 418) that the excretion rises, but the rise is higher in the normal than in the tuberculous subject.

TABLE III
Urinary excretion of Vitamin 'C' in normal persons. Diet supplemented with ascorbic acid.

Serial No.	Name	Age	Sample I		Ascorbic acid 500 mg. B.D.H. given after first sample of urine	Sample II		Sample III		Remarks
			Qty. of urine passed in 24 hours	Vit. C excretion in 24 hours		Qty. of urine passed in 24 hours	Vit. C excretion in 24 hours	Qty. of urine passed in 24 hours	Vit. C excretion in 24 hours	
1	R.R.	28	800 c.c.	52.8 mg.		700 c.c.	105.0 mg.	900 c.c.	104.4 mg.	Wheat bread, pulses, vegetables, potato, ascorbic acid given after first sample.
2	B.S.	24	1,100 c.c.	55.0 mg.		800 c.c.	76.8 mg.	900 c.c.	81.0 mg.	Do.
3	K.B.D.	28	1,000 c.c.	60.0 mg.		800 c.c.	76.8 mg.	600 c.c.	76.8 mg.	Do.
4	D.B.	40	400 c.c.	24.0 mg.		400 c.c.	60.0 mg.	800 c.c.	88.8 mg.	Do.
Average				47.9 mg.			79.6 mg.		87.7 mg.	

Urinary excretion of Vitamin 'C' in tuberculous subjects; given ascorbic acid.

Serial No.	Name	Age	Sample I		Ascorbic acid 500 mg. B.D.H. given after first sample of urine	Sample II		Sample III		Remarks
			Qty. of urine passed in 24 hours	Vit. C excretion in 24 hours		Qty. of urine passed in 24 hours	Vit. C excretion in 24 hours	Qty. of urine passed in 24 hours	Vit. C excretion in 24 hours	
1	S.B.	22	1,300 c.c.	9.1 mg.		1,340 c.c.	26.08 mg.	850 c.c.	15.3 mg.	Advanced case of tuberculosis. Diet: wheat bread, pulses, vegetables, potato.
2	F.B.	30	460 c.c.	9.2 mg.		400 c.c.	12.12 mg.	450 c.c.	10.8 mg.	Anorexia. Diet: wheat bread, pulses, vegetables, potato, apple only. Extreme exhaustion. Advanced case.
3	K.B.	10	430 c.c.	10.7 mg.		800 c.c.	22.4 mg.	300 c.c.	12.0 mg.	Anorexia and diarrhoea advanced case. Wheat bread, pulses, vegetables, potato.
Average				9.7 mg.			20.2 mg.		12.7 mg.	

These observations indicate that in tuberculous infection the body tissues remain in a state of vitamin C depletion resulting from the increased destruction of this vitamin as pointed out by BANNERJEE ET AL (1941). This state of depletion is borne by the observations recorded in tables II and III which indicate that in spite of feeding an optimal level of vitamin C for several days or of giving a single massive dose of ascorbic acid, its excretion in urine in tuberculous subjects was lower than the normal.

In view of the significant role that vitamin C appears to play in maintaining the physiological integrity of the body tissues and in combating infections, an attempt was made to incorporate some food factor in the diet which might exercise a vitamin C sparing action.

In group IV, therefore, the diet of both the normal and the tuberculous subjects of group III was supplemented with yeast. The feeding of yeast* (15.6 gm. per day containing about 125 I.U. of vitamin B) was started three days before the first estimation of ascorbic acid was made. It will be observed (Table IV) that the ascorbic acid excretion was 27.5 mg. prior

TABLE IV
Urinary excretion of vitamin 'C' in normal persons on an average diet supplemented with yeast and ascorbic acid

Serial No.	Name	Age	SAMPLE I		Ascorbic acid 500 mg. administered	SAMPLE II		SAMPLE III		Remarks
			Qty. of urine passed in 24 hours	Vit. 'C' excretion in 24 hours		Qty. of urine passed in 24 hours	Vit. 'C' excretion in 24 hours	Qty. of urine passed in 24 hours	Vit. 'C' excretion in 24 hours	
1	D. R.	20	800 c.c.	24.0 mg.		700 c.c.	70.0 mg.	1,000 c.c.	112.0 mg.	Wheat bread, vegetables, pulses and milk. Yeast given 3 days before and ascorbic acid after 1st sample.
2	H. R.	26	700 c.c.	22.4 mg.		1,000 c.c.	80.0 mg.	900 c.c.	81.9 mg.	do.
3	O. P.	26	900 c.c.	36.0 mg.		800 c.c.	79.2 mg.	800 c.c.	80.6 mg.	do.
Average				27.5 mg.			76.4 mg.		91.5 mg.	

Note:—Ascorbic acid given after 1st sample. Yeast started 3 days earlier.

Urinary excretion of vitamin 'C' in tuberculous subjects given yeast and ascorbic acid 500 mg. (After 1st sample of urine)

Serial No.	Name	Age	Sample I		Ascorbic acid 500 mg. administered	Sample II		Sample III		Remarks
			Qty. of urine passed in 24 hours	Vit. 'C' excretion in 24 hours		Qty. of urine passed in 24 hours	Vit. 'C' excretion in 24 hours	Qty. of urine passed in 24 hours	Vit. 'C' excretion in 24 hours	
1	K. A.	24	960 c.c.	24.0 mg.		1,150 c.c.	41.4 mg.	800 c.c.	20.0 mg.	Wheat bread, vegetables, pulses and milk.
2	P. D.	16	540 c.c.	14.4 mg.		600 c.c.	22.2 mg.	800 c.c.	32.0 mg.	do.
3	N. B.	24	700 c.c.	14.0 mg.		800 c.c.	32.0 mg.	750 c.c.	37.5 mg.	do.
			Hæmoptysis slight			Hæmoptysis				
Average				17.5 mg.			31.9 mg.		29.8 mg.	

Note:—Yeast was started three days earlier and continued till experiment.

to administering a massive dose (500 mg.) of ascorbic acid and 76.4 and 91.2 on the two successive days in normal subjects as compared with 17.5,

* Manufactured by Carew & Co., Cawnpore.

31.9 and 29.8 respectively in tuberculous subjects. It will be seen that the excretion of ascorbic acid is more satisfactory in this group of subjects than in the third group where the diet contained an enhanced amount of vitamin C. It seems that the yeast modifies the internal functions of the body tissues in such a manner that the destruction of vitamin C is reduced.

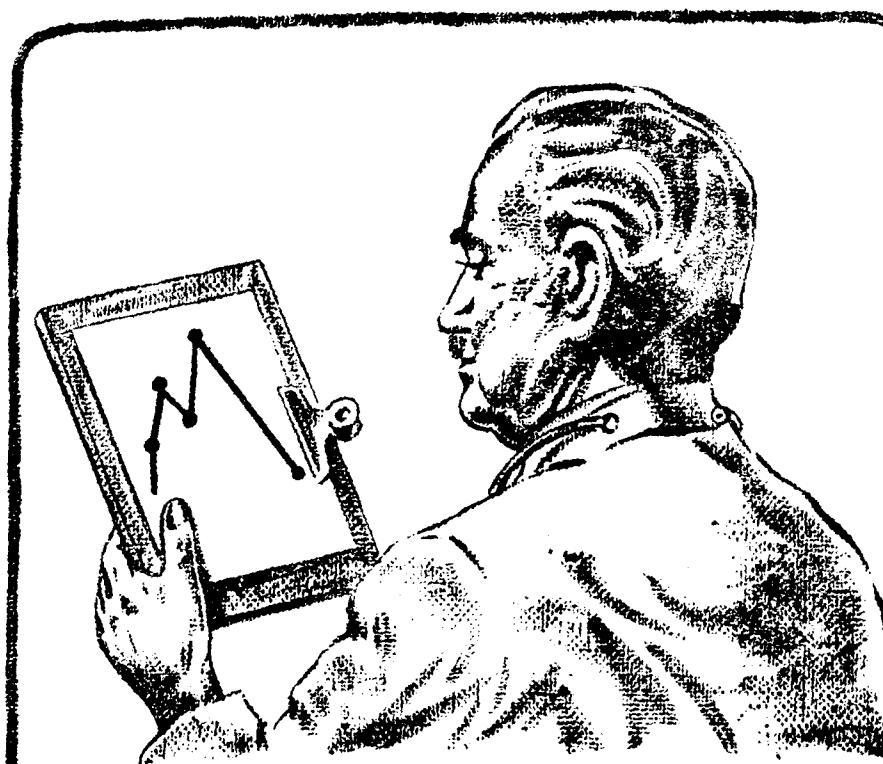
Although due to the departure of one of us (B.B.R.) from these laboratories it was not possible to continue the feeding of yeast with an optimal amount of vitamin C over a long period under conditions of private practice, observations extending over 2 to 3 months, however, indicated that the patients improved in general condition. It seems difficult to assess whether this improvement is due to the sparing action that yeast may exert on the vitamin C in the body thus making it available to the tissues in greater proportions for detoxicating the toxins, or to a modification in the cellular metabolism and the oxidation-reduction process.

Although the number of cases tried by us is too small to warrant any authentic statement, further work on a larger number of subjects and the B Vitamin which exercises a specific influence will be of great interest.

Summary.—In the course of studies on the feeding of vitamin C and yeast on the ascorbic acid excretion in normal and tuberculous subjects, it has been observed that:—(1) The average daily excretion of ascorbic acid in tuberculous subjects is lower than in normal persons. (2) If the diet of tuberculous patients is supplemented with an optimal intake of vitamin C from citrus fruit juice or a single massive dose of ascorbic acid, the excretion of vitamin C increases, though there is still an indication of considerably more destruction than in normal subjects. (3) It seems that yeast may exert a vitamin C sparing action.

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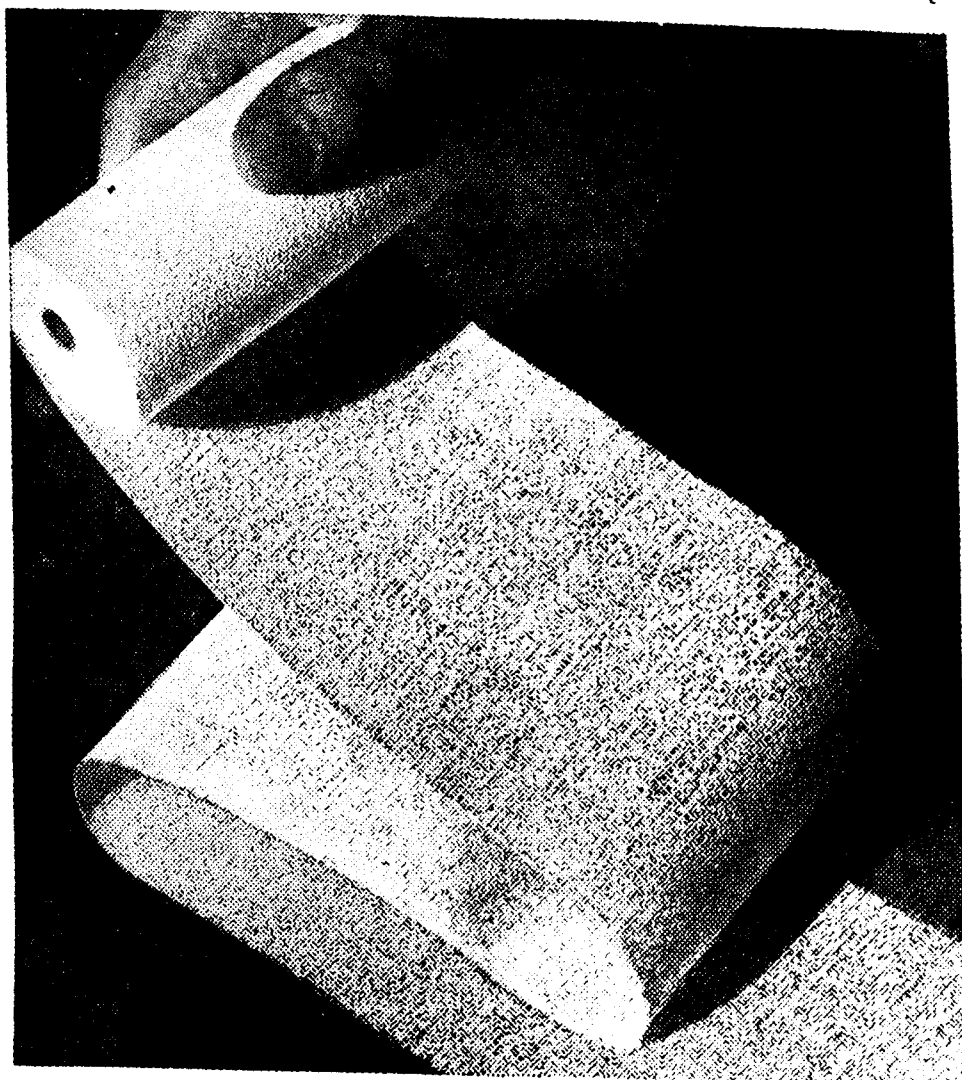
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(Continued from page 372 of July issue).

Chapter XX

Operative Delivery—Obstetric Forceps in Cephalic Presentations

1. **Maxims.**—1. Forceps are designed for application along the occipito mental diameter of the foetal head. It follows that they are only suitable for a vertex, a face or an after-coming head in a breech presentation.
2. Skilful traction in the correct direction and *not* force is requisite for successful forceps results.
3. The more deliberately and gently the operation is performed the better will be the results.
4. Damage to mother or child as a result of forceps is a sign of incompetence on the part of the operator.
5. Theoretically the obstetric forceps should not be employed in the absence of uterine contractions. It is however not always possible to await the return of contractions and in such a case great care is required to avert serious "p.p.h."
6. The obstetric forceps must not be applied too soon. Time must be given for the bladder and cervix to be drawn up out of the pelvis where they would be in great danger of being injured. But there must be no delay when the indications exist and the conditions are fulfilled or equally great damage may result.
7. Where the perineum appears to be too resistant an episiotomy, which is not too timid, may permit the head to emerge and thus avert the application of forceps or if forceps have to be applied may save the infant's brain from fatal damage.
8. Remember you have the delicate structure of the child's brain in the grip of a powerful vice and that it requires from 15 to 30 minutes for ordinary forceps delivery, most of which time is expended in bringing the head on to the perineum. Ease off the grip between each traction. If the axis traction attachment is being employed this necessitates release of the fixation screw.
9. Forceps having been applied, failure to produce any advance with them after moderate traction or even inability to achieve correct application of the forceps is usually due to an unrecognised failure of flexion resulting in the presentation of the large four cornered fontanelle, a mento-or occipito-posterior position, deep transverse arrest, disproportion, insufficient preparation of the soft parts (including urine in the bladder and faeces in the rectum), a constriction ring or a tumour of the foetal-neck or thorax. There must be no hesitation in removing the forceps and re-investigating the case.
- If it is found that the parietal bosses are really only at the brim of the pelvis podalic version may be the solution.
10. Where forceps extraction finally fails, consider perforating the foetal head before removing the forceps. The forceps hold the head steady

and will tend to squeeze out the contents. When the head has been reduced in size extraction by forceps may become easy. If not take of the forceps and apply the cranioclasts.

11. It is always of advantage to use the axis traction attachment except possibly when the head is actually emerging through the vulval opening.

12. Many quaint and quite unsuitable instruments are on the market to-day. Beware of them.

13. For village work in India I advise a general purpose instrument incorporating the following features:—

(a) The entire instrument should be made of stainless steel.

(b) The blades, shanks and locks should be identical with the "Bengal forceps" as made by Messrs. Down Bros., to the order of Sir Kedarnath Das.

(c) The handles should be of the fish tail type like those of the Milne-Murray, Bonney or Haig-Ferguson instrument but suitably lightened to suit the blades. There should be no projecting shoulders or cross pieces on the handles near the locks.

(d) The axis traction attachment should be of the Neville removable traction bar type suitably lightened to suit the rest of the instrument. The transverse handle bar should be hollow.

(e) For the larger woman of Northern India, Haig Fergusson's forceps fitted with Neville's removable traction rod will be found suitable.

(f) Messrs. Down Bros., 23, Park Hill Rise, Croyden, England, supply such an instrument.

II. **Description of the obstetric forceps.**—1. The instrument consists of two halves which articulate at the locks and of an axis traction attachment.

2. Each half is composed of a blade, a shank, a lock and an application handle.

3. Each blade is fenestrated (contains a window) and possesses two curves. The curve, the convexity of which is between the two blades when the forceps are articulated, is the cephalic curve. The other curve is the pelvic curve.

4. The concavity of the pelvic curve of the blade is directed towards the front of the forceps.

5. The portion connecting the base of the blade with the handle is the shank and at the junction of shank and handle is situated the lock by means of which the two halves cross each other to articulate and lock.

6. As a result of the crossing of the two halves of the forceps at the locks the handle which is on the left of the operator belongs to same half as the blade which will be applied to the left side of the birth canal in the pelvis of the mother. This is therefore called the left half and owing to the construction of the lock it is also the lower half. The other half is the right or upper half.

7. There are two types of axis traction attachment in general use.

(a) Tarnier's or Milne-Murray's modification thereof. In this type a stud hole is cut in the base of each blade. Each of the two traction rods has a stud at one end. In Tarnier's model the stud is passed into the hole in the blade from the medial aspect: in Milne-Murray's modification

the stud is passed into the hole from the lateral aspect of the blade. When in action the traction rods lie along the rear surface of the shanks. A transverse handle bar incorporating a universal joint is connected to the free ends of the traction rods by a catch. The handles of the forceps require a fixation screw to hold them together when traction is being exerted on the transverse handle bar of the axis traction attachment.

(b) Neville's removable traction rods are attached, after they have been articulated, by a screw to a lug on the back (dorsal surface) of each handle of the forceps. This attachment screw thus also serves as a fixation screw. The transverse handle bar is permanently connected to the traction rod by means of a universal joint. There is an arrow head stamped on one portion of the universal joint and a line is stamped on the other portion. By keeping the arrow head pointing along the line traction is always assured in the long axis of the curve of the birth canal.

Neville's apparatus is the most simple for the general practitioner because being attached after the blades have been applied, the traction rods do not obtrude during the most difficult part of the operation.

(c) There are a number of other less common axis traction devices. For those who already possess obstetric forceps without slots or lugs for any axis traction attachment LE PAGE has designed a tractor (Down Bros. Cat. No. 942/5.)

8. The cephalic curve of the obstetric forceps is designed to be applied along the occipito-mental diameter of the foetal head, from vertex to chin, with the parietal bosses and cheeks in the fenestrae (windows), or from chin to vertex. Serious injuries may result to the infant's head if it is gripped obliquely by the blades.

III. **Types of operation.**—1. *Outlet forceps and low forceps*:—I like to make the following classification: (i) forceps on the floating head; (ii) inlet forceps when the parietal bosses are engaging in the brim; (iii) high forceps when the parietal bosses are between the brim and the ischial spines; (iv) mid forceps when the parietal bosses are at the level of the ischial spines; (v) low forceps when the parietal bosses are between the ischial spines and tuberosities; (vi) outlet forceps when the parietal bosses have reached the ischial tuberosities and the presenting part is on the perineum.

As soon as the occiput in a vertex presentation, or the chin in a face presentation, has rotated anteriorly into the "A.P." diameter of the outlet and lies at the pubic symphysis the operation should be easy.

Difficulty is likely to be due to failure to recognise a persistent occipito or mento-posterior position or in rare cases of foetal cervical thoracic or abdominal tumours, locked twins, constriction ring or contracted outlet.

2. *Mid forceps and high forceps*:—These are difficult operations. It is important to remember that in vertex presentations when the vertex has reached the level of the ischial spines the parietal bosses are safely engaged but that in face presentations the chin must come much lower on to the pelvic floor before the parietal bosses engage.

Failure of attempts to apply the forceps properly or to obtain any advance after application are usually due to the case being unsuitable for forceps. Either the disproportion is too great and craniotomy must be performed; or the cervix is not fully dilated or the head insufficiently

moulded and more time is required; or the parietal bosses are still above the pelvic brim and, provided the uterus will stand the strain, version should be substituted or, if rupture threatens the uterus, craniotomy performed.

2. *Inlet forceps* and forceps on the floating head are condemned.

The alternatives are version, provided the uterus will stand the strain and disproportion is slight, or craniotomy, where disproportion is considerable or the uterus is in danger of rupturing.

IV. **Contra-indications.**—1. Forceps must *not* be used where serious disproportion exists, or to pull the head past a tumour unless the tumour can be pushed out of the pelvis.

2. As soon as the foetus is dead it may be better to perform perforation, crushing the head and possibly cleidotomy.

3. Traction must be *discontinued* and the case *re-examined* if no progress results from two or three tentative pulls.

4. No force greater than that obtained by holding the flexed elbows close to the sides must ever be used. The feet of the operator must *never* be braced against a support *nor* must the weight of the operator's body be employed. Rather than use such force the foetal head must be perforated which can be done with the forceps in position.

V. **Indications for the operation.**—There are certain indications which call for the application of forceps provided the conditions mentioned below in (VI) are fulfilled:

1. When the head has been held up on the perineum for an hour without progress (see (I) (7) above).

2. When the 2nd stage has lasted 2 to 3 hours and there appears to be no immediate prospect of spontaneous delivery.

3. When the membranes have been ruptured 24 hours and there is no very early prospect of labour terminating naturally.

4. When there is maternal distress or to forestall it.

5. When there is foetal distress or to avoid it.

6. When the funis has prolapsed and it is too late for version.

VI. **Conditions requisite.**—These are the conditions which *must* be fulfilled before it is permissible to apply forceps. Where these conditions are *not* satisfied some other means of dealing with the situation must be employed.

1. Disproportion, if it exists, must be *no* more than slight. This precludes a hydrocephalus or a head which is too small for the blades to grip without danger of slipping.

2. The presentation must be or must be converted to a well flexed vertex, with the occiput anterior, or a well extended face with the chin anterior.

3. The parietal bosses must have descended through the brim of the pelvis.

4. The bladder must be emptied, if a catheter fails then by suprapubic puncture.

5. The cervix must be fully dilated.

6. The membranes must be ruptured.

VII. **Conditions desirable.**—These are the conditions which should be fulfilled to facilitate the operation and obviate dangers:

1. The rectum should be unloaded.

2. The uterus should be contracting. Sometimes the application of forceps stimulates the uterus to contract. If this fails "Pitocin" should be given intranasally or 0.5 unit at 20 to 30 minute intervals should be injected "i.m." Preparations must be made for "p.p.h."

3. Sufficient time should be allowed for the head to mould and for the bladder and cervix to be drawn up out of the pelvis.

4. The infant should be alive. If it is dead consider perforation and possibly crushing of the head to conserve the pelvic floor from damage.

VIII. **Anæsthesia.**—A. Unless local infiltration anæsthesia is being used anæsthesia must be short of the stage which completely abolishes self control or else must be pushed to full surgical degree.

B. ANTE-SACRAL NERVE BLOCK.—(Adapted from Tucker and Benaron)

1. **Requirements:**—(a) Premedication with Omnopon or Morphine if time permits.

(b) Drugs—200 c.c. 0.05% Nupercaine (Ciba) solution; i.e., 200 c.c. water or isotonic saline to which 100 mg. Nupercaine has been added containing 1 c.c. 0.1% Adrenalin chloride solution.

(c) Instruments—One syringe of 10 or 20 c.c. capacity.

One 3 c.m. needle of 23 gauge.

Two 15 c.m. needles of 20 gauge.

(d) Time—about 15 minutes for actual infiltration.

2. **Operation:**—(a) Place the patient in the exadurated lithotomy posture with her hips well over the edge of the bed.

(b) Introduce the tip of the left index finger, well lubricated, into the rectum and locate the sacrococcygeal joint.

(c) At the level of this joint make a Nupercaine intradermal weal at 1.5 c.m. away from the midline on each side using the fine needle.

(d) On the left side through the weal introduce the point of the long needle, work it over the edge of the 5th sacral vertebra, advance it along the ventral surface of the sacrum in contact with the bone parallel to the midline to the 2nd sacral foramen, 6 to 7 c.m. above the level of the sacrococcygeal articulation. If blood does not drip from the needle attach the syringe, commence injecting the Nupercaine and slowly withdrawing the point of the needle to the edge of the 5th sacral vertebra deposit 55 to 65 c.c. on the way between the 2nd and 5th sacral foramina.

(e) Withdraw the point of the needle almost completely, change direction and advance the point to lie over the coccyx. Deposit 10 c.c. between the rectum and coccyx.

(f) Repeat the procedure on the right side.

3. **Duration:**—The anæsthesia so produced should remain effective for between 2 and 3 hours.

NOTE.—Nupercaine is boilaile. It is precipitated by alkalis. Syringes and bottles must be of neutral glass boiled in water slightly acidified by the addition of 1 to 2 drops HCl. dil. To prepare or dilute Nupercaine solution the sterile redistilled water must have a pH under 7. If a precipitate forms add HCl. dil. drop by drop until the precipitate dissolves. It oxidises adrenalin fairly rapidly in the presence of air.

C. Provided skill and gentleness are employed, the application of the blades should not cause much pain especially when the head is low and the occiput is anterior. There is therefore an advantage in avoiding other than

local anaesthesia for simple low forceps. The idea of anaesthetic may frighten the patient more than the dread of the operation.

D. Where a Junker's inhaler is available the patient can work the pump herself and as she will cease pumping before becoming deeply narcotised the danger of an inexperienced assistant is avoided. The Young-Simpson apparatus supplied by John Bell and Croydon, Wigmore St., London W-1, works automatically in a similar matter for Vinesthene (M & B).

E. When a colleague is available or even an expert nurse or midwife an anaesthetic is most desirable. When the patient is restless or when the head is high or the occiput posterior or the presentation is a face a general anaesthetic becomes almost essential.

IX. Posture.—1. The woman may be in the dorsal or in the left lateral posture. When an axis traction attachment is not available the left lateral posture has a definite drawback unless the occiput or chin has rotated into the A.P. diameter of the outlet and is lying under the symphysis pubis [see (XIII) (9), (10) and (11) below].

2. When there is only one assistant available and the head is on the pelvic floor in a straight forward occipito-anterior position the left lateral posture is satisfactory.

3. In other cases the dorsal posture is to be preferred. If crutches are not available extra assistants must be procured to hold the patient's legs, or the legs may be hooked over the padded backs of two chairs, or a sari used as described in Chapter XV, (I) 5.

The patient must be laid on a bed, *charpoy* or table at a suitable height and her buttocks must be brought to the edge. The operator must have a stool, chair or inverted box on which to sit.

X. Preliminaries.—The operation is divided into four stages: (1) Examination; (2) Application of the blades and articulation of the locks; (3) Extraction of the head; and (iv) Removal of the instrument.

1. The forceps and axis traction attachment must be sterilized and placed in antiseptic lotion-ready on a handy side table or inverted box.

2. The other instruments and appliances must be laid out.

3. Sterile towels or towels prepared as described in Chapter I, 14, must be ready.

4. The patient and the operator must be prepared as described in Chapter I, 12, and in Chapter III, 17.

5. Sit down and face the field of operation.

6. Pick up the forceps, articulate them and with the convexity of the pelvic curve directed towards the hollow of the sacrum point the tips of the blades towards the woman's vulva.

7. In this way avoid becoming confused as to which is the right branch and which is the left branch and rehearse the operation.

8. If the traction apparatus is Tarnier's or Milne-Murray's, attach the correct traction rod to each blade and ensure that you comprehend the manner of keeping the traction rods; in Tarnier's clipped to the dorsal surface of the shanks by studs; in Milne-Murray's lying along the ventral surface of the shanks; out of the way during the introduction of the blades.

XI. Examination.—1. Before applying forceps endeavour to discover the cause of the delay [see Chapter V. 1.]

2. If not due to a full bladder or loaded rectum the primary cause is nearly always some form of disproportion which may result in a malpresentation or in an occipito-posterior position.

3. When the head is arrested in the upper part of the pelvic cavity and the uterus is contracting well, an abnormally large caput usually forms and since the delay is due to disproportion in the majority of cases the head tends to become firmly fixed like a screw bolt in a nut. Such a case is likely to require perforation.

4. With the head high and weak uterine contractions delay is probably due to deflexion with an anterior, i.e., large four-cornered fontanelle presentation or occipito-posterior position. The caput is less likely to be excessively large and the head usually remains moveable until the parietal bosses descend past the ischial spines.

5. With the head low weak expulsive forces may fail to flex and rotate the occiput if posterior or to extend and rotate a posterior chin or to drive a normal vertex or face through a rigid outlet.

6. Investigate the presentation and position because in all forceps operations you must know:—

(a) The position of the occiput if the presentation is a vertex.

(b) The position of the chin if the presentation is a face.

7. If there is not much caput and/or the head is on the perineum the index and middle fingers of the left hand will suffice and will avoid the inconvenience of possibly pushing back the presenting part.

8. As soon as the direction of the sagittal suture has been ascertained and one of the fontanelles has been identified the position of the occiput becomes obvious.

9. If the large rectangular fontanelle is more easily felt than the small triangular fontanelle it indicates failure of flexion. Rectify this by placing your finger tips over the posterior ear and your thumb over the anterior ear and flexing; or, if found easier, by placing two or three finger tips over the occiput and pulling it down; or, by pushing up the brow.

In face presentations, if the chin is not found to be the lowest part it must be extended by being pulled down or by pushing up the brow. If however the chin is only at the level of the ischial spines, in view of the fact that the parietal bosses are still above the brim of the pelvis, version is preferable provided there is no danger of rupturing the uterus.

10. If the rim of the external "os" can be felt the fingers are placed on the head just within the membranes and the "os" to ensure that the blades are introduced between the head and the cervix.

11. Whenever the caput obscures the sutures and fontanelles it is necessary to introduce the index and middle fingers and sometimes the whole of the left hand into the hollow of the sacrum to locate the posterior ear. The convexity of the curve of the helix is parallel to the curve of the occiput and hence points in the same direction.

When the posterior ear is located the fingers must remain in contact with it to act as a guide for the tip of the blade of the forceps.

12. If the occiput or chin is in one of the posterior positions feeling for the ear may bring about flexion or extension and cause rotation to a transverse position.

If rotation fails to occur it must be produced as described in Chapter XVII (I) B and (II).

XII. Application of the blades to the head.—1. *Maxims*:—

(a) Where the occiput or chin is in a transverse or a posterior position and you have failed in your attempt at bimanual rotation, perforate and crush the foetal head. This may avert extensive lacerations to the rectum of the mother, sloughing of her vagina, fistula into her bladder or death for her as well as for the child.

(b) You may either introduce and keep your left hand in the vagina all the time and use your right hand for holding both halves of the forceps or you may introduce your right hand into the birth canal while your left holds the left half of the forceps and subsequently change your vaginal hand to enable your right one to hold the right half of the forceps.

If one method proves inconvenient for any particular case do not fear to change over to the other method.

2. *In general*:—(a) If the weather is cold and the patient is not anaesthetised place the blades in a sterile jug of warm "Dettol" solution.

(b) Lubricate the hand you intend introducing into the vagina and the blades of the forceps unless they are steeping in warm slippery fluid.

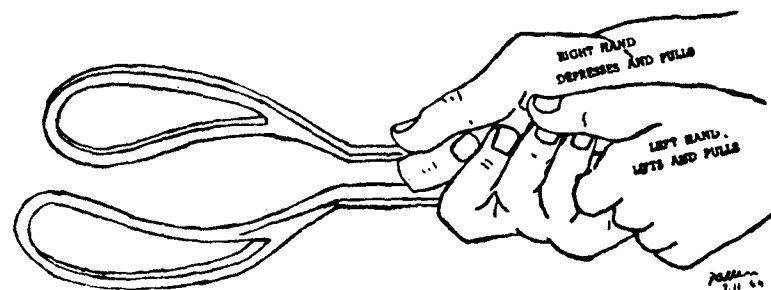
3. *Oblique occipito-anterior positions*:—(a) When the sagittal suture lies in an oblique diameter of the pelvis the axis traction attachment is invaluable and when available, unless it is of Neville's or Le Page's type, the traction rods must be in position before the application is attempted.

(b) Introduce the tips of two or more fingers of one hand into the vagina, palmar surface towards the pubes. These fingers depress the perineal body and act as a posterior speculum. At least two finger tips must contact the external "os" or the posterior ear, whichever is lower, without the intervention of the cervix.

Failure to feel the external "os" or to ensure that it is retracted above the greatest diameter of the head may result in grave injury to the mother.

To achieve this the tips of the fingers in the vagina may have to

HOLD ON FORCEPS FOR "L. O. A."—POSITION 1



advance to the left sacro-iliac synchondrosis in "L.O.A." or to the right sacro-iliac synchondrosis in "R.O.A." positions.

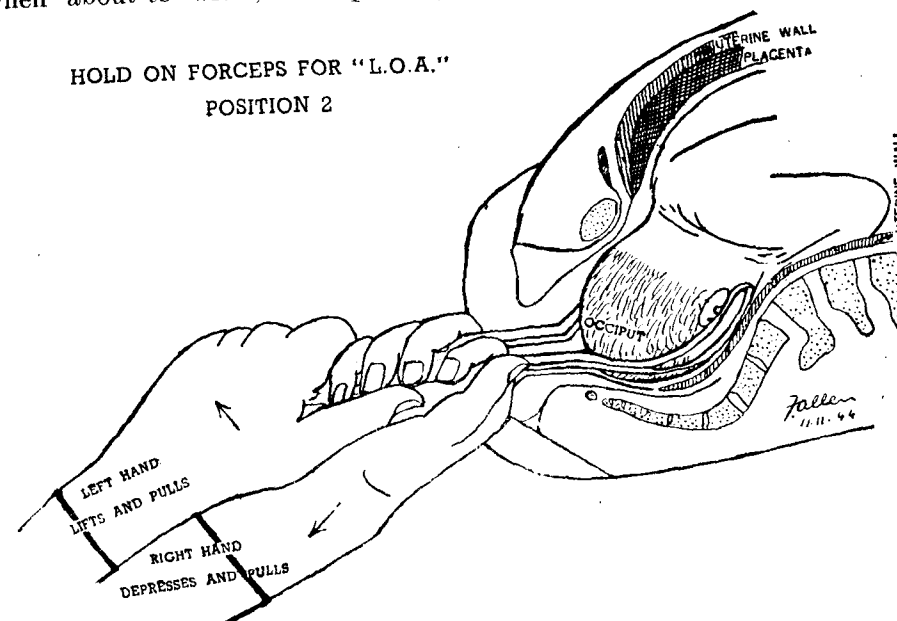
(c) Rupture the membranes if they are still intact.

(d) Keep your finger tips within (a) the membranes and (b) on the external "os" or, if the "os" has retracted, on the head where it meets the pelvic wall.

(e) If you can accomplish this without introducing the half hand into the vagina you avoid the nuisance of possibly pushing the presenting part upwards but you must get two fingers on the external "os" or on the helix of the posterior ear.

"L. O. A." :—(a) In your free hand pick up the left half of the forceps by the lock and hold it almost vertical with the grip you use for a pen when about to write, the tip or apex of the blade corresponding to the

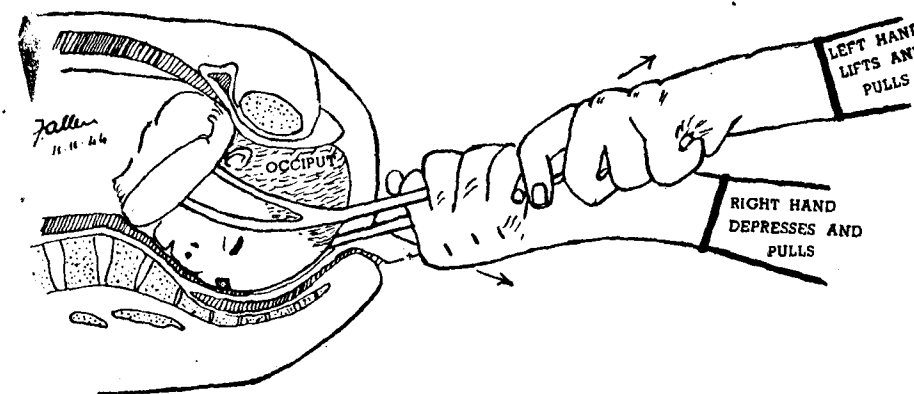
HOLD ON FORCEPS FOR "L.O.A."
POSITION 2



point of the nib. (If you have a Milne-Murray type of traction rod keep it on the front of the handle).

(b) Glide the apex of the blade, with the concavity of the cephalic curve facing the mother's pubes, through the vulval ring in the direction of the coccyx, along the palmar surface of your vaginal hand, keeping the

HOLD ON FORCEPS FOR "L.O.A."—POSITION 3



line of the application handle and shank parallel to the "A.P." diameter of the pelvic outlet.

(c) As you advance the apex of the blade by pushing on the lock your vaginal fingers must guide it into following the natural curve of the sacral hollow.

(d) Keep the apex of the blade in close contact with the head to obviate the inclusion of the funis and to enable the tip to pass within the

membranes and external "os." But at the same time avoid letting the blade tip impinge on the head at nearly a right angle for it will raise up the scalp in a fold which will arrest the advance of the blade, and any force employed to overcome this obstruction will cause the head to recede and increase your difficulties.

(e) As the fenestrum disappears inside the vulva gently and gradually depress the lock.

(f) Visualise the position of the foetal head, its posterior (left) ear lies in the neighbourhood of the mother's left sacro-iliac synchondrosis. The window of the left blade is to enclose the posterior (left) parietal boss with the anterior rim over the ear and the apex in the region of the mandible.

(g) As soon as the whole of the cephalic curve has passed in through the vulval ring make it move anti-clockwise round the curvature of the head in the left posterior quadrant of the mother's pelvis, guided by the finger tips in the vagina (without including the cord) *within the membranes and the external "os,"* by gently rotating the lock anti-clockwise and simultaneously moving it first slightly to your left and then slightly to your right.

(h) The lock must be held very lightly and resistance overcome by change of direction and *not* by force. As the lock sinks towards the perineal body you may, if you like, slide back your hold and grasp the handle like a scalpel.

(i) When the blade has been inserted and applied properly without enclosing the rim of the external "os" it will remain securely in position, the shank resting on the perineal body and the front of the lock (see (II) (4) above) facing the mother's left groin.

(j) Partially, if you are using the left hand, or wholly, if you are changing hands, withdraw the vaginal hand until two fingers can be introduced into the right posterior quadrant of the pelvis, but not too deeply.

(k) With your disengaged hand pick up the right half of the forceps and in a similar manner introduce the apex of the blade (but above the left shank) until the tip reaches the level of the mandible and the lock is at the same level as the lock of the left half.

(l) By depressing and rotating the handle clockwise make the blade pass round between the head and the right side of the pelvis until the window encloses the anterior right parietal boss with the anterior rim of the fenestrum covering the (right) anterior ear, which is lying in the neighbourhood of the mother's right ilio-pectineal eminence.

(m) If the application has been correct and the two locks are pressed well posteriorly against the perineal body they will slip into each other (articulate) and the flat medial surfaces of the handles will come together along their whole length, though to bring this about slight manoeuvring of the handles may be necessary. Bear in mind that it is the right lock which must be brought into apposition with the left lock, because the right blade has a tendency to gravitate posteriorly into the space opposite the mother's right sacro-iliac synchondrosis and, unless accurately placed along the occipito-mental diameter of the head, the flat medial surface of the handle will face the mother's right groin instead of her right buttock.

(n) If the locks fail to articulate *no* force may be used. Withdraw the right half of the forceps. If the left half is correctly applied it may be left in position and the right blade reapplied.

(o) If the left half is not in correct position it too must be withdrawn and the position of the head re-examined.

(p) Serious injury to the infant's head or avulsion of the cervix are likely to result from forcibly locking the forceps.

(q) Failure to articulate the locks *without force* is usually due to—

(i) Failure to apply the blades especially the right blade along the occipito-mental diameters of the head (reapply the blades).

(ii) Failure to pass the apex of the right blade to the same level as the apex of the left blade (reapply the blades).

(iii) The apex of one or both blades having been passed outside the external "os" (reapply the blades).

(iv) A mistaken diagnosis of the position of the head. The occiput being posterior and/or incompletely flexed (for treatment see Chapter XVII).

(For (r), (s) and (t) see at end of 4 below).

The parietal bosses being still above the pelvic brim (treatment should be version or craniotomy).

(v) The child has hydrocephalus.

(To be continued).

Sulphonamide Sensitivity*

B. M. KOTHARY, M.B., B.S.,
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WITH the increasing use of Sulphonamides parenterally and locally, newer facts are coming to light lately. Toxic reactions from internal administration have been observed and described at length; but for some time past now it has been noticed that even local application can produce reaction. INGRAM (1942) had sounded a warning that local use of Sulphonamide can produce sensitisation. TATE (1944) described a series of cases of epidermal sensitisation produced by local application of these drugs. PARK also explained the mechanism of Sulphonamide allergy and states that the toxic effects of this drug are probably of allergic nature. PARK and PLATT showed that the skin manifestation in the form of erythema and desquamation could be experimentally produced by exposing the body to ultra-violet rays during the administration of the drug. ERSTEIN calls it 'photo allergy' and the drug acts as an allergen.

After a period of Sulphonamide application to a wound, in a certain number of cases local irritation or primary dermatitis may appear; but later on other parts of the body to which no Sulphonamide had been applied, may develop secondary eczematous or exfoliative type of dermatitis. This may be on the whole body or limited to areas exposed to light, though it has been observed that exposure to sun facilitates the development of sensitisation and further that Sulphonamides themselves can cause sensitisation to sun-light. It has been also seen that there is profound irritation of hands, round the edges of the lips and round the anal margin, with the formation of an urticarial rash on the dorsum of the hands and other parts of the body.

The diagnosis can generally be made by 'patch tests' and can further be confirmed by internal administration of the drug, when those who are sensitive, develop the characteristic eruption, even after the initial dermatitis has been cleared up long before. Moreover it appears that one who

* Specially contributed to THE ANTISEPTIC.

is sensitised to one of the Sulphonamides is thereafter sensitive to all or some other members of the group. But it is necessary that a distinction must be made between reactions resulting from toxicity of the compound and a true type of induced hypersensitivity.

CASE REPORT:—Mr. A., who was a diabetic developed a carbuncle on his arm. He was treated with Insulin injections till his urine was sugar-free. Then he was operated upon and the subsequent progress was satisfactory. But after a few days when the wound was clean and the urine continued to be sugar-free (without any further Insulin treatment) Sulphonamide was applied locally for healing. After 8 to 10 days of such application, he suddenly developed exfoliative type of dermatitis with local inflammatory redness round the wound. His blood sugar on that date was only 13 mgm., urine was sugar-free, diet was bland and vegetarian and nothing incriminating was discovered in his personal history. The dermatitis was dry in some parts, weeping eczematous in others and pigmented with desquamation on some other parts; itching was intense and constitutional symptoms were not marked. Local application of Sulphonamide was stopped and the wound healed up in due course of time. The skin condition also cleared up after ordinary usual treatment. He did not submit to patch test and was not inclined to take Sulphonamide internally when he was given to understand that his skin condition was probably due to allergic reaction to local Sulphonamide.

A few observations have been clearly defined by now on the subject. This sensitisation occurs only in a small proportion of cases who otherwise are normal, show no hypersensitivity or idiosyncrasy to Sulphonamide or any other drug and are not subject to allergic manifestations like migraine, asthma or eczema. The sensitivity is supposed to be due to antigen-antibody reaction and may be temporary for 2 to 3 years or be permanent for life long. Sulphonamide in any form—powder, paste or ointment—is likely to cause dermatitis in susceptible cases. Even prolonged nasal insufflation of these compounds can produce such hyper-sensitivity. And lastly, this sensitisation—if severe and permanent—may unluckily preclude subsequent administration of this group of drugs in other serious illnesses which are known to be only amenable to treatment with this wonder-drug of the century.

Desensitisation is the only method of cure for such conditions. NIXON persisted with the drug, even increasing the dose and succeeded in subsequent desensitisation. It can also be brought about by oral administration of the drug to which the patient is sensitive, beginning treatment with a small amount, e.g., 1 gm. B.D. and rapidly stepping up the dose to the adult maximum dose in about a week's time. One of the methods that has been suggested is to inject 0.5 c.c. (initial dose) of suitable blood serum from a donor who has been taking the offending drug for the last five days.

These methods achieve desensitisation occasionally, but there is a risk of severe allergic reaction and exfoliative dermatitis developing during the procedure. But luckily the newly-hailed drug—"Penicillin" is still available for such sensitive patients in their serious illnesses, and thus it may not become an imperative measure to take risk in desensitising such patients at all.

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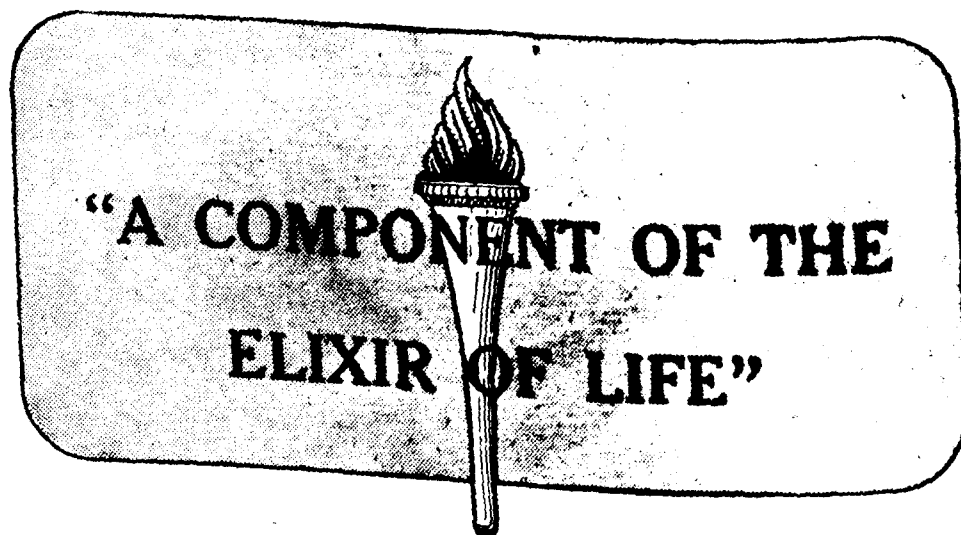
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United Nations Conference on Food and Agriculture*

(A Critical Review)

MAJOR V. KRISHNA ROW, I.M.S., (E.C.),

Indian General Hospital, Fd., (Ex-Medical Officer, Presidency College, Madras).

A man is what he eats

THIS Conference of the United Nations was initiated by and convened at the instance of PRESIDENT F. ROOSEVELT, U.S.A., in the midst of a gigantic war, when the whole world was faced with food shortage problem. It was presided over by HON. MARVIN JONES, Judge of the United States Court of Claims and the Chairman of the American Delegation, to this Food Conference. Delegates from 44 countries^(a) attended the Conference at Hotsprings and took part in the proceedings. A summary of the report of the working this International Conference has been submitted to the Indian public by DR. W.R. AYKROYD^(b).

Objectives.—The Conference met to consider the goal of *freedom from want*, in relation to food and agriculture (one of the freedoms enunciated by PRESIDENT ROOSEVELT for the happiness of humanity). It started with the assumption that—

"more production was needed if the people of the world were to have sufficient food for adequate nutrition; and that both new and existing production would have to be adjusted to secure more of those *protective foods*, which are most necessary for good health."—(P. 2 of the Report).

The Conference was *not* called upon to conduct a detailed investigation into the policies, which should be adopted by the Governments of the world, in order to promote an expansion of economic activity; but it realised that freedom from want of food cannot be fully achieved without such an expansion. (P. 3, Report). It did not attempt to lay down ideal standards of nutrition for all peoples. It did recognise that while the ultimate objective must be a world, in which all people are fed in full accordance with the requirements of good health, it will be necessary as a practical measure to concentrate on immediate goals, which must differ from region to region, varying with climate, tastes, social habits, and other circumstances. These are primarily a matter for the individual Governments to determine, and declare to their own people their intention to secure more and better food for them.

The various measures that might be immediately adopted are: Education of the public, special supervision for particular classes of people, and the improvement of the quality of food.

The Conference agreed upon the following broad principles, viz.,

- "(1) Poverty is the first cause of malnutrition and hunger;
- "(2) Freedom from want cannot be achieved unless there is a balanced and world-wide expansion of economic activity; and,
- "(3) Which cover not only the adjustment of production to fit the long-term requirements of a better diet, but also, the improvements in the general efficiency of production."

* Held at Hotsprings, Virginia, U.S.A., May 18 to June 2, 1943. Final Act and Section Reports U. S. publication, 1943. (a) Appendix I; (b) *Current Science*, India, Aug. '43. [433]

The Conference of the United Nations on Food and Agriculture concluded with its unanimous and final recommendation that—

“the Governments and their authorities represented should declare their obligation to their own people and to one another to raise the levels of nutrition and the standards of living of their citizens, to improve the efficiency of agricultural production, and to co-operate with one another for the achievement of these ends.” (P. 4, Report).

It winded up with the establishment of an Interim Commission at Washington, to carry out the above recommendations of the Conference, based on the reports of the four technical sectional committees.

Work.—The session of the Conference and its sectional committees' deliberations were spread over 18 days. It divided itself into 4 main technical sections. Each section sub-divided itself into 3 or 4 committees, to thrash out the different aspects of the food problem, freedom from want and submitted their detailed reports, for the consideration of the plenary session of the United Nations Food Conference. These enabled the main Conference to unanimously agree to the broad principles and the final recommendations (*supra*).

Section I had 3 sub-committees, which dealt with the food questions, relating to: Consumption levels and requirements; character and extent of consumption deficiencies in each country; causes and consequences of malnutrition; reasonable national and international goals for improved food consumption; measures for improving standards of consumption (education, propaganda, etc.); other pre-war consumption.

DR. W. R. AYKROYD is the reporter of this Committee.

Section II had 4 sub-committees, which considered—Expansion of production and adaptation to consumption needs; measures for the direction of production towards commodities the supply of which should be increased; measures for shifting production out of commodities in chronic surplus; measures for improving agricultural productivity and efficiency; measures for the development and the conservation of agricultural resources; and opportunities for occupational adjustments in agricultural populations. The Indian Agent-General, SIR G. S. BAJPAI, was on this Committee.

Section III was divided into 4 sub-committees, which reported on the problems of:—Facilities and improvement of distribution; relation of national and international economic policies to the agricultural problems, with reference to the facilitation of movement of agricultural products in commerce; expansion of internal trade; broad policies for assuring increased production and consumption in general; improvement of agricultural marketing, processing, and distribution; and special measures for wider distribution by (a) improvement of consumption of low-income groups and (b) international disposition of commodities in over-supply, buffer-stocks, and commodity arrangements to assure suitable prices and adequate supplies.

Section IV concerned itself with the recommendations for carrying and continuing forward the work of the Food Conference.

A scheme of the United Nations Food and Agriculture Conference is appended—Appendix II.

With regard to agriculture, the Conference considered such questions as: agricultural credit and co-operative movements; land tenure and farm

labour; conserving land and water resources; occupational adjustments in rural populations; achievement of an economy of abundance; national and international measures for wider food distribution; Government and other national marketing; and, fish and marine products.

The public health and sociological considerations, that were recorded are: medical and public health administrations are responsible for the health of the people; housing problems, habits and customs, and the education of the community.

Declarations.—The plenary session of the Food Conference after considering the reports of the 4 technical sections, on the various aspects of the food problem—freedom from want—agreed unanimously to make the following declarations:

“Poverty is the first cause of hunger and malnutrition. There has never been enough food for the health of all people. The goal of freedom from want of food, suitable and adequate for the health of all the peoples, can be achieved. Each country must have a sound *nutrition and agricultural policy* (italics mine); and also must re-organize the existing medical and public health agencies as well as review legislation. Nutrition is the primary concern of the Governments everywhere.”

All these declarations are to be carried out in two parts, short-term and long-term production policies. The short-term policy is concerned immediately with the food-shortage in war devastated countries, during and just after the war is over. The long-term policy is the stable one, in the body-politics of the country. The U.N.R.R.A. is most concerned with the short-term policy and will render all help in this connection.

This above declaration has been fully endorsed by PRESIDENT ROOSEVELT on behalf of America, as will be seen in his closing address to the United Nations Food Conference—

“You have been dealing with agriculture, the most basic of all human activities, and with food, the most basic of all human needs..... All people have in the literal sense of the word, a vital interest in food. That a child or adult should get the nourishment necessary for full health is too important a thing to be left to mere chance. You have recognised that society must accept this responsibility.

“In the fields of both production and consumption, you have recognised the need for better utilization of the knowledge we now have, and for extending still further the boundaries of our knowledge through education and research.

“A sound world agricultural programme will depend upon world political security, while that security will in turn be greatly strengthened if each country can be assured of the food it needs. Freedom from want and freedom from fear go hand in hand.”

Food.—To its final report, the Conference has appended an excellent monograph on food. This appendix stresses on *adequate diet and a satisfactory nutrition* (as opposed to *balanced diet*), to build health. Nowhere is a balanced diet advocated. Reports on nutrition in China, India, South Africa, East Indies, Philippines, Egypt, Mexico, and various American countries were presented by the delegates. The Conference had at its

disposal the *Report of the Nutrition in the Colonial Empire*, which helped all the delegates to the conclusion that—

“taken as a whole, the picture is one of world-wide under consumption, leading to malnutrition and its attendant evils” (p. 37).

The *diets*, says the report of the United Nations Conference, “which do not conform with the principles of *satisfactory* nutrition (*italics mine*), lead to impaired physical development, ill-health, and untimely death” (p. 35).

Therefore, the Conference has recommended dietary allowances, approved by the National Research Council, U.S.A. (Appendix III). To solve the food and health problems, it has again stressed that each country must formulate a national food and nutrition policy.

India and the report.—India has its best nutrition representative in Dr. W. R. AYKROYD. The valuable report reveals the difficulties that are to be encountered, the obstacles to be overcome, and the intricate aspects of nutrition that have to be thrashed out, in reaching the goal of freedom from want. This United Nations Food Conference is built on the foundation-stone, laid by the League of Nations, in its *final report of the mixed committee* on the relation of nutrition to health, agriculture, and economic policy. But it is an eye-opener, that the world has not profited by the last report. This indifference has resulted in general all over the world, in raising the levels of ill-health, of malnutrition, and of impaired physical fitness.

The United Nations Food Report has dealt with the food problem on an international plane of high ideals. It was convened for this purpose of bringing the food problem to the front rank of international sphere and activity, controlling the whole nutrition field, the different nations being feeders to the world pool of food production and distribution. It has aimed at the high water-mark of international collaboration, in the field of food standards. The success of this International Conference, says Dr. W. R. AYKROYD, are not to be measured by “political, economic, and financial expediencies of the moment. It is at this first Conference, that an essential scientific approach to the fundamental problem of *freedom from want* was adopted”¹.

But humanity being what it is (selfish and self-seeking, and therefore aggrandising) it is certain that no nation will rise to this *selfless* ideal. Politics, flag, and trade competitions will enter the field after the war is over, and smash this ideology, *all for one and one for all*. Future food trade is a problem which India cannot ignore, from her economic point of view.

In the post-war period, every nation and each country (from the experience of this war) will try to become self sufficient for all its food needs, like Germany after the last war and Britain to-day. In this world progress, India cannot afford to remain indifferent with all her potential food and other resources. She must resist or resent all pressure to do otherwise, in the face of her chronic food shortage and the increase of population.

India is in an unfortunate position, suffering from many maladies. Her food and health problems are anything but complimentary. She has to cater to the ever-growing population of 400 millions. Therefore, it is doubtful whether she will be able to look beyond her nose. One is reminded of the saying *charity begins at home*. I am afraid the value of this beneficial report will be lost upon the Indian public (especially when she is deluged with post-war schemes of all descriptions in all fields of activity), unless

1. Current Science, Aug., 1943.

Indians bestir themselves to health, nutrition, and agricultural activities. Now or never should be the motto. Health is the *basic* to all other skills.

The Report of the United Nations Food Conference has repeatedly emphasised that it is the responsibility of the Government to assure its people, that they will give them enough and adequate food to make them healthy. But it is not an easy thing in a vast country like India, with 400 millions population. It will need all the wisdom, ingenuity, craftsmanship, and co-operation of the departments of health, education, supply and transport and agriculture, to evolve a common and sound nutrition and agriculture policy, which is but part of the larger *health policy* for the nation—the *marriage of agriculture and nutrition*, for the health and physical efficiency of the people. It is here that the Health Survey and Development Committee of the Government of India, must exert itself to its highest level of efficiency, if its services are to be appreciated in India.

Enough research work has been done in India, by both official and non-official agencies, which must help to chalk out a *satisfactory diet chart*, both for the individual and for his community. The London War Committee (1914-'18) had fixed the calorie requirements for all occupations (*Appendix IV*)^{*}. Before the present War was begun, a *subsistence diet* (barely adequate and satisfactory, to keep health and physical fitness) was worked out as follows:—

England	... 2,000 calories.
Germany	... 1,600 to 2,000 calories.
America	... 2,700 calories.

That a diet card for students and the people is a necessity was stressed long ago by the Sadler Commission's Report (Calcutta University Commission Report, 1917-'19). This still remains a wishful thinking, even after 25 years.

The defects in the Indian dietary have been repeatedly emphasised that “in general, the diets are defective because they do not contain *protective foods* in sufficient abundance (*e.g.*, eggs, milk, fresh green vegetables).” Dr. AYKROYD has remarked that “rough scrutiny of the food supply justifies the deduction, that the national diet is defective in *quality* and does not conform to the standards generally accepted by nutrition workers. As regards *quantitative* sufficiency, the statistical data, as has been suggested are not sufficiently accurate to justify an assessment”[†].

One is tempted to ask the question: “*As this is overdue in India, with so much of research work, when will these statistical data become accurate for assessment*”? This drifting only indicates that we have yet to come into grips with our main food problem. This situation in India is unfortunate indeed.

Contrary to the world reports and ideas on nutrition and its dependent health, India has become wedded to a *balanced* diet, as a cure for all her illnesses, due to bad feeding. The balanced diet (though good and beneficial) is costly and uneconomical. It cannot become the daily diet of Indians, in their present economic state. It is only running after the will-o'-the-wisp. I venture to submit, that because Indian research-workers and the indifferent public have been working on this sole hypothesis of a *balanced diet* all these years, *all the real* usefulness and benefits of much

* My special article: Nutrition Policy for India, I.M.J. Dec. 1938.

† Dr. W. R. Aykroyd: Nutrition No. 21. Oxford Pamphlets on Indian Affairs, p. 11.

nutrition work have not only been lost on the Indian public, but also are not appreciated by them. Thanks to Dr. AYKROYD, India can be certainly proud of her nutrition research work and record. Therefore, public co-operation is lacking. The *fad* of a balanced diet will have to be given up, in place of a *satisfactory* diet, strongly recommended by both the League of Nations and the United Nations Food Conference, which inter-alia states:

"Diets which do not conform with the principles of *satisfactory* nutrition (italics mine) lead to impaired physical development, ill-health, and untimely death" (p. 35 of the Report).

A *satisfactory* diet must satisfy the following requirements, viz.—

- (1) Physiological requirements of the human system ;
- (2) Psychological motives that create and satisfy the appetite ;
- (3) Social customs, castes, and creeds to which the individual belongs ;
- (4) Environmental factors, such as city or rural life ;
- (5) Conditions of work of the individual in fields, factories, or in the professions ; and lastly ;
- (6) Income of the individual.

It is obvious that a diet which does not satisfy these above conditions can never build health, nor maintain physical efficiency, nor both.

Let me illustrate a *satisfactory* diet. India is a vast country, having many religions, castes, and communities. Each has his own diet, whether of superior or of inferior quality. A Hindu would go after the grass, like the Muhammadan after the meat. The food varies from province to province, and is entirely separate from one another, either in taste, mode of preparation, or in eating. The food also varies from season to season, and also in the same race from time to time.

Speaking of the Provinces in India, a *Madraasi* (South Indian) wants his tamarind, red chillies, and butter-milk if not curd ; a *Malabari* (South West Coast Indian) wants his cocoanut oil combined with the Madraasi food ; an *Andhra* must have hot condiments and water-less food ; a *Bengali* his dhal ; a *Mahratta* his dhal-bath ; an *Englishman* his chappati ; a *Bombayite* his puri and bacon and cheese ; *Chinese* his roasted pork ; a *Pole* his sheep-mutton. If one should cut off the food of one of these, there is much grouse, which impairs his health and efficiency. There is no meaning in forcing a Madraasi to take to wheat diet or a North Indian to a rice one. This will not bring the desired result, as one would have made it out from a study of migration question. The South Indian population who have migrated to the tea plantations of Ceylon, Far East, or even to the Fiji Islands require rice only. Their food is a problem to the Government of these countries. With rice (but not without it), they will turn out any amount of work, under any hard working conditions. It is well to remember the hackneyed expression—*one man's food is another's poison*—however good it may be for the other.

The Indian Army is fed on this principle of *satisfactory* diet, which has enabled the South Indian soldiers to beat all records in this war, as it will be in all future wars. They are therefore healthy and physically fit. Be it said to the credit of the Indian Army, even under the worst conditions of warfare, each community gets its own *satisfactory* diet, suited to its tastes. This principle must be noted and adopted in the Indian public everyday

life, when diets are recommended by nutrition research workers. Otherwise, their efforts are doomed to failure and cannot get any appreciation from the people, as to-day.

In the *Bhagavad Gita*,* "the foods are classified into 3 categories—the food which is pleasant to each (kind) is also threefold ; so also are the sacrifices, penance, and alms-giving".

"The foods which give an increase to life, substance, strength, health, well-being and joy ; which are savoury, fat, substantial, and cordial are the foods, which are pleasant to the *good*—the *Satwik*.

"Foods that are strong in savour, sour, salted, over-hot, pungent, bitter, and inflaming, which produce pain, grief, and disease are the foods desired by men endowed with *passion*—the *Rajasik*.

"And that which is stale, which has lost savour, is stinking and corrupt, which is even refuse and filthy, is the food dear to men of *darkness*—the *Thamasik*.

The quality (*guna*) of the human being depended and depends upon one of these three kinds of foods, which he consumes, by virtue of his station, life and society. Thus the food for the Brahmin, for the warrior, and for the lower strata of society became gradually differentiated. And the saying arose—*A man is what he eats*. Sentiments like, that non-vegetarian diet gives better muscular strength or a vegetarian diet develops better intellect or *vice versa*, are all foolish and befit only *chamber-politics*. This has been proved by the personnel in the present War, that the difference due to food, between martial and non-martial communities, is a piece of imagination and a myth. It all depends upon one's upbringing for centuries and his innate vitality. The primary *criterion* of a good diet is that it *must* satisfy the individual, whether it is meat or grass, rice or wheat, milk or butter-milk, the protein of beef or that of dhal (pulses). It is obvious that even a balanced or unbalanced diet must be satisfying to build health and physical fitness. Therefore, the *food fad* of any one particular individual, community, or race is all wrong in relation to another.

India by majority is a vegetarian country. From the experiences of this War, it is obvious that many non-vegetarian countries are tending towards vegetarianism. By her 4-year Food Planning Scheme, Germany was educating her people to take to more vegetables, in lieu of meat. In Germany, "the dietary was not determined by what people liked to eat, or by what they could afford to buy, but by what the German *farms* could produce".²

It was known to Indians long ago that to conserve health, it was best to eat in small quantities, at more frequent intervals—to quote the *Yoga Upanishads*.

Hitam mitam cha bokthavyam, stokam stokam anekha dha.

Dr. Aykroyd has rightly observed that in India, *enough food takes precedence over the right kind of food*³. This is only to be expected in a poor country like India. The United Nations Food Conference has recorded that—

"even in the most prosperous countries, there are many families

* Bhagavad Gita : Chapter XVII.

2. Sir John Russell "Britain's Food in Wartime", No. 52. Oxford Pamphlet on World Affairs, p. 13.

3. Dr. Aykroid "Nutrition" No. 21, p. 15.

which cannot afford to buy enough food; and even in times of prosperity many people are unable to afford adequate diets" (p. 2 of the Report).

The United Nations Conference on Food and Agriculture have suggested to the food-reformers, that to improve the adequate diet of a person, who is without it, the physiological requirements of health and other measures designed to fit local conditions and institutions are necessary. Professor BAYLISS' dictum, *take care of calories and the other contents will take care of themselves*, is a sound one to be taken note of, under the present Indian conditions of life and not to boost vitamins and other costly diets and food-substitutes. These do not serve any useful and practical purpose. They are of academic interest only. Also, this is a wrong approach to the problem of nutrition.

Vitamins have their limited place in the diet. The statistics of the diseases of vitamin deficiency do not call for such an extensive advocacy of these accessory food factors. In the Madras Presidency, the Surgeon-General's Report for 1938, revealed that only 0.27 to 0.35% of the population was suffering from avitaminosis. It is well-known that the Madras Province is the most advanced of all other Indian Provinces and States, regarding public health activities and organisations, and their reports.

The defects in the Indian dietary could be positively improved without any extra cost or additional products. It has been pointed out by the United Nations Food Conference (under review) that the dietary adjustments must be made "to suit the existing economic and agricultural realities." I cannot do better than quote the League of Nations Report:—

"At the present time, however, the diets of the vast majority of the populations of Eastern and tropical countries are grossly deficient, when judged by these standards which are obviously out of immediate reach (italics mine). In these circumstances, it becomes necessary to set up some suitable goal for purposes of practical nutrition work. Recommendations for improvement must be adjusted so as to raise the existing level of diets to a degree, which is not beyond the bounds of practical possibility."

Recent research work has shown that—

"people living in tropical climates require less animal fat than those living in temperate or cold climates. For they are helped with the effect of sun's rays on the skin, which is equivalent to consuming a large quantity of vitamin D, necessary for bony growth."

In the light of this report of the British Research Medical Council, the criticism of the Madrassi diet by Dr. AYKROYD that "the consumption of animal fat is very low, which means less intake of vitamin A," is not understandable.

The common Indian vegetables which are economical and handy do contain all the necessary vitamins needed for the body. To extract maximum nutritive value from the available food-stuffs, instruction in cooking is a necessity. Bad cooking and under- or over-cooking are not a little responsible for much of the ill-health and waste of food-stuffs and their nutrient values. As the United Nations Conference have pointed out in

4. League of Nations "Bulletin of Health Organisation", Vol. VII, No. 4, (Aug. 1939). Quoted by the United Nations Report also.

their report, "the methods of food preparation should be such as to retain value to the fullest possible extent."

The defect in the Indian diets is more of *injudicious* use of foodstuffs, rather than their *insufficiency*. By careful and judicious methods of cooking, the so-called *poor* Madrassi diet can be made to stand comparison with any other best diet in India or elsewhere. The daily number of foodstuffs that are used in an ordinary middle-class family diet is 19, viz., rice, *thor dhal*, black gram, Bengal gram, salt, tamarind, red chillies, asafoetida, mustard, fenegreek seeds, coriander seeds, turmeric, rice-flour, gingely oil, ghee, pickles of lime, mango, or of gooseberry (amla), and milk as curd. (Appendix V).

To improve the diet, Dr. W. R. AYKROYD has suggested that "an increase of pulses at the expense of an equivalent quantity of cereals, as good from the nutritional point of view". This may be of expedient value only. There is bound to be difference of opinion on this suggestion, both among nutrition workers and the medical profession. It is well-known to all Indians that pulses (more than 2½ ozs.) produce gastric disturbances. Therefore, one will be chary in taking to the increase of pulses, even though suffering from starvation. Of course, any food is *manna* in the way of starving people in India.

Foreign foodstuffs.—Many foods are advertised in the market, with or without the help of the medical profession. There is no substitute to milk. The *skimmed milk powder* which is claimed as a good substitute and recommended by nutrition workers, has already been condemned as long ago as 1938, by the American Department of Agriculture as "containing only 55% of the energy of the unskimmed milk" and also by the British Medical Research Council as "deficient of fat, vitamins, and salts." To make up this deficiency, we have to take fruits, in addition. This means that the cost of the Indian diet is increased. When one cannot afford to buy milk, he is recommended to buy imported skimmed milk powder plus fruits, which is costlier than the milk itself. Obviously, this is an insult at the economic condition of the poor Indians. As against this costly skimmed milk powder, the common Indian butter-milk holds the field, both in its cheapness and other valuable constituents.

Soya bean.—Regarding this, an adverse report was submitted by the Madras Agricultural Department in 1937 or 1938. They remarked that the soya bean grows with great difficulty in Indian soil, and that experiments conducted in Guzerat and Tinnevely (South India) were not encouraging. The soya bean showed different percentage of constituents value, and also growth in size (smaller). As against this soya bean, it has been shown that the Indian ground-nut is good and cheaper, though poorer in proteins and iron contents. The Bombay group of nutrition workers have shown that the indigenous ground-nut is as good as soya bean, from the economic point of view, and for all practical purposes. It has been reported that the German Army were using extensively soya bean, in their last Poland campaign, and that also yielded satisfactory results. Only the end of War will truly reveal its real value. It is admitted that the soya bean is of indigenous origin in China and Japan. No useful purpose is served by comparison with these countries. Soya bean is as good for the Chinese as

5. Radhakamal Mukerjee: 'Population and Food Supply,' No. 1 All-India Nutrition Board Pamphlet.

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rice or wheat is for the Indian. "With all thy faults, I love thee," my Indian diet.

What is required is, as Dr. AYKROYD aptly put it, to educate the educated for a better food campaign, instead of grow more food campaign. The use of hand-pounded rice, ground-nut, potatoes⁶, as well as the local cattle posture and dairy products, should be more wisely encouraged than milled rice, soya bean, and other foreign food products. It has been shown also, that rice-bran is richer than wheat-bran. The general public must be made to buy wisely or efficiently the foods needed. Educational efforts are absolutely necessary in this connection, and especially when the public are deluged with motivated advertisements of foods and their products. The immediate aim is the correct management and utilisation of available food resources rather than their enlargement. That the problem of raising the level of nutritive food consumption is so difficult nay, almost impossible, in India, could be noted from the observation of Sir J. B. ORR—

"to raise the food consumption of the whole population to the level of top 10%, who buy nutritionally satisfactory diets, would involve an increase in demand for—milk 80%; meat 29%; butter 41%; fruits 124%; eggs 55%; and vegetables 37%."

The object is to correct bad food habits and to give positive instructions on the right sort of food, enough sleep, rest and exercise (the fundamental necessities of a healthy life), so that the citizen may reach that standard of health viz., that no improvement can be affected by a change in diet. (ORR).

Food supply.—The average normal supply in a typical pre-war year (1937-'38) in British India⁷ is—

Rice	... 28 million tons	Wheat	... 10 millions tons.
Millet	... 17.5 " "	Barley	... 2.0 " "
Maize	... 1.5 " "	Tapioca	... 1.5 " "
Pulses	... 7 to 9 " "		

Milk and dairy products. 22.0 millions tons (5 ozs. per capita per day).

Fish ... 660,000 millions tons.

Eggs ... 2,700 millions. Potatoes—2.0 millions tons.

Sugar ... 5.3 millions tons (India now produces more sugar than any other country in the world 1.3 ozs. per capita per day).

Fruits and vegetables. 9 to 15 millions tons, for 3 million acres of land.

Meat ... "The amount eaten by the greater part of the population is almost negligible. The consumption of poultry is of no quantitative importance, wild games do not provide any appreciable addition to the meat supply."

6. The vitamin contents of potatoes are not affected by boiling. Further, potatoes, unlike cereals and sugar, prevent dental diseases. J. B. Orr and Lubbock have observed that an acre of potatoes gives twice as much food as an acre of wheat. The potato is the best insurance crop against food shortage.

7. Sir J. B. Orr: "Food, Health and Income," (1936).

8. Dr. Aykroyd: "Nutrition," No. 21, pp. 7 to 11.

The amount of nutritive elements available in the pre-war period per rupee, in the different foods are tabulated as follows:—^(a) & ^(b).

	(a) gms.		(b) in gms.			
			PROTEINS	FATS	CARBOHYDRATES	CALORIES
Wheat	...	2,084.0	246.0	31.26	1,480.0	7,202.0
Rice	...	1,838.0	123.1	12.87	1,422.0	6,288.0
Bajra	...	2,888.0	332.1	144.4	1,937.0	10,380.0
Barley	...	3,000.0	344.9	38.99	2,079.0	10,050.0
Jowar	...	2,991.0	311.1	46.89	2,214.0	10,650.0
Maize dry	...	2,917.0	323.8	105.0	1,932.0	9,979.0
Bengal gram	...	2,278.0	389.5	120.8	1,394.0	8,275.0
Pulses (arhar)...	...	1,667.0	371.8	28.34	953.7	5,586.0

The production of rice and wheat (the main cereal foods) are deficient. Rice: India's normal production is 26.44 millions tons. In 1944, this fell to 24.8 mills. tons. Therefore, there is shortage of rice production by 1.6 millions. In this connection, we have to take into account the imported rice from Burma, Thailand and Indo-China, (averaging about 2.4 millions tons), which have been cut off by the Japanese aggression. Therefore, the net shortage is 4.0 millions tons. We have to add to this 4.0 millions tons, the quantity of rice that India is exporting to Ceylon (which is now dependent on India). As such, there is shortage of rice by 33 lakhs tons^{9-a}. Of all this deficit of rice, about 1 million tons are expected to be wiped out by the *Grow More Food Campaign*. The normal imports of the major rice-eating provinces in India^{9-b} are tabulated below:

PROVINCES	IMPORTS IN TONS		
	RICE	WHEAT	GRAMS
Bengal	... 5.0 lakhs	220,000	38,000
Madras	... 5.7 "	—	—
Bombay	... 5.0 "	2.5 lakhs	—
U. P.	... 2.0 "	—	—
C. P.	... 2.0 "	—	—

Wheat.—The normal production of wheat is about 10 millions tons. In 1944, it had increased by about 1 lakh tons. Out of this production, the exports are:

Wheat grains	...	160,000 tons.
" flour	...	22,000 "
War time	...	500,000 "
Total exports	...	682,000 "

Therefore, there is a deficit of 582,000 tons of wheat. Of this deficit of 6 lakhs, one lakh is reported to be wiped out by the grow more food campaign. While there has been a deficit in the major provinces, the Punjab has a surplus of wheat and other cereals (*Appendix VI*).

(a) Figures supplied by Prof. Radhakamal Mukerjee, Lucknow University.

(b) The protein, fat, carbohydrate, and calorie contents have been worked out by me, with the help of "Health Bulletin" No. 23 (1941 revised), Government of India publication.

9-a. Radhakamal Mukerjee: "Food Supply," No. 8. Oxford Pamphlet on Indian Affairs, p. 26.

9-b. Ibid., pp. 23-24.

The average yield of wheat (lbs. per acre) in the different provinces are:¹⁰

Punjab ...	738	Bombay ...	447	U. P. ...	786
Sind ...	593	Hyderabad ...	231	C. P. ...	444
Gwalior...	458	Central India...	382		

In the Crop Planning Conference of the Government of India in 1938, "it was decided that India should not attempt to produce more than 9½ millions tons of wheat; and that there should be no stimulus to increased area. It is plain that the future of this crop will depend upon world supplies and on India's policy regarding wheat."^{10.a}

But, on the other hand, inferior cereals, like bajra, barley, and jowar have been produced in abundance, as will be shown in a subsequent para.

Food shortage and population.—The population of India has been steadily rising, in spite of 30 famines during the 19th century, of the last war casualties (1914-'18), and of the high rates of infantile and maternal mortality. In 1936, the food shortage fell by 12.73%¹¹.

India's population of India in 1935 ...	377 millions.
" food needs ...	321.5 billion calories.
" food supply ...	280.4 "
" food shortage ...	41.1 "

The average deficit was 423 calories in each man's daily ration, on the assumption that he is to get 2,800 calories per day. Therefore, the number of the foodless on the assumption that the rest of the population obtained their minimum physiological requirements of 2,800 calories, is 43 millions or 12.73% of the population.

In 1938, the food deficit was 11.5 millions tons.

In 1943, " " " 15.5 " " " That is food for about 70 millions is lacking.

DR. AYKROYD has estimated that the Indian population, which is underfed is 30% roughly¹². For China's population of 425 millions, PROF. CHIAO-CHIMING has estimated that 10 millions will go without food or starve, that is, they will not get enough food to eat.

Nutritional survey in Canada in 1943, showed that—

"40% of the population to be on the border line, 40% were not getting a sufficient amount of proper food, according to the accepted standards; and only 20% were receiving amounts of food considered adequate to provide the normal requirements of the body"¹³.

In America, no less than a third of the Nation has poor diet¹⁴.

In Britain, in 1939, the population was 47 millions. The food available was only for 19 millions. Therefore, the food shortage was for 28 millions, that is 60% nearly¹⁴.

10. Government of India publication, "Technological Possibilities of Agricultural Development in India—A Note by Dr. Burns," 1944.
10-a. Ibid.

11. Radhakamal Mukerjee: "Food for 400 Millions."

12. Aykroyd. "Nutrition," No. 21, p. 15.

13. U.S.A. 'Public Health Report', May 21, 1943.

14. Sir John Russell: 'Britain's Food in Wartime,' No. 52. Oxford Pamphlete on World Affairs. 1942: p. 8.

Food shortage in wartime.—It has been estimated that the Indian Army requires wheat 500,000 tons and rice 150,000 tons and the feeding of about 500,000 refugees from outside India.

The deficit of rice and wheat to which the war demands must be added reveal a terrible disparity between supply and demand. This unhappy situation is further aggravated by the cessation of imports of rice from Burma, Thailand, Indo-China, and the Far East. Not only this, Ceylon has become dependent on India for her rice supply, which demand has not been taken into account for the deficit in rice. Therefore, the net deficit of rice (excluding Ceylon exports) is 4.0 millions tons.

The surplus or deficit of production in the different provinces of the major food crops, rice and wheat, which represent about 40 millions out of 62 millions tons of food supply, available for consumption in India, is given in Appendix VII.

Famine in India.—The Public Health Commissioner, Government of India, from 1933 onwards, in his annual reports, has been regularly predicting a food-famine in 1941 or 1942. This alas, has come too true to-day. No one cared to profit by his clarion call of distress. This shows the indifference of the Indian public and the country's leaders to the primary needs of the people. Pre-occupation with politics or political activity is no valid excuse for this apathy. The other causes that have led to this famine conditions in this land of plenty are while the population has been steadily rising, the food supply has been gradually diminishing; the Far Eastern War stepped in, which added to the deficit, by cutting off the imported supply; Ceylon became dependent for her food supply; and the growing Indian Army had to be fed to win the war.

Some other causes are the Government control over prices which has not become effective, in spite of all Defence of India Rules and Ordinances; rich landlords began to hoard the food grains (in the Punjab, the food grains were used as a security to raise fresh cash loans in Banks); the black market was indirectly helped to flourish; and lastly, out of pure selfishness, the surplus provinces of the Punjab and Sind refused to part with their surplus food production to the starving provinces. So, the first fruit of all these fissi-parous tendencies is the famine in Bengal, which it is obvious is a man-made one. A Famine Enquiry Commission has been set up by the Government of India, which is drafting its Report to-day. (The Report has since been published.—Ed.).

All these misfortunes of malnutrition are due either to lack of foresight or to the indifference of the country's leaders to the primary needs of the teeming millions whose welfare they profess to protect. As DISRAELI remarked—the first duty of the statesmen is the care of the people.

Therefore, what we need is to enunciate a bold nutrition policy, accompanied by a sound agricultural policy, so that all sections of the population have a reasonable opportunity of getting a satisfactory diet.¹⁵

Nutrition policy.—A sound nutrition policy provides essentially a preventive and constructive health service, especially when applied to

15. League of Nations Report. 1937. Recommendations of the Viscount Astor's Committee, which considered what economical policies should be adopted by the various governments, what social legislation should be passed, and what education should be given.
* My special articles: 'Nutrition Policy for India,' Indian Medical Journal, Decr. 1938, and Studies on Nutrition, in the ANTISEPTIC, May and July, 1941.

children, the prop of the future generation of leaders and men. The nutrition policy must help to raise the standard of health and to have a population as strong and developed physically and mentally fit, as proper nourishment can make it. (VISCOUNT ASTOR)

In the formulation and development of a nutrition policy for India, the following recommendations are worth a study, for adoption suiting local conditions:—

1. P.E.P Health Report : *Britain's Health* (Pelican special series);
2. F.L. CLARK and R.M. TITMUS : *Our Food Problem* and its relation to our national defences (Penguin special).
3. The Report of the United Nations Conference on Food and Agriculture, 1943 (the report of this review article).

The P.E.P. Health Report : This report recommends—

“(1) More effective measures to reduce the costs of production, but above all of distribution ;

“(2) readjustment of national policies to secure free and unrestricted supply without any element of taxation of food, essential to nutrition ;

(N. B.:—In this connection, the proposed Madras Agricultural Income-Tax would come in for a good deal of criticism.)

“(3) Propaganda and education, in order to bring about the necessary changes in national spending habits and diets—to buy wisely or efficiently the foods needed (as J. B. ORR put it) ; and,

“(4) Subsidies to lower the prices of certain essential foods, or to bring especially cheap or free supplies to those shown to need but unable to afford more nutritious food ” (pp. 177-178).

In the pre-war days of the present war, pictures were depicted in Europe, showing the agriculturist standing behind the soldier, as his backbone. And the agricultural policy was directed towards the national defence of the country. It is well worth recalling Napoleon's historic saying *the Army marches on its stomach*. If the vast man power of India are to be mobilised properly, then this nutrition policy cannot be neglected.

In discussing the obstacles and remedies in the planning of food policy the authors (F. L. CLARK and R. M. TITMUS) suggest in their pamphlet “Our Food Problem” the following measures:—

“(1) to increase the income of every worker, employed and unemployed, by the requisite amount ; for this, it will be necessary to have effective control of prices and adjustment of wages in industry. No Government can readily intervene to raise wages by a perceptible degree without disturbing the currents of investment, upon which the industry depends.

“(2) to lower the prices of a range of foodstuffs upon the retail market ;

“(3) to provide food to certain sections of the community, through the medium of social services.

The problem of reducing the food prices could only be solved through a drastic reorganisation of our whole distributive machine.....this will

entail a struggle with the food manufacturing and distributing interests, that must be in itself a minor revolution. (The obstinacy of the Punjab in refusing to part with her surplus food grains to the other needy provinces, is an instance). It appears that the Central Government is afraid of interfering with the Punjab in regard to food grains.

“(4) to gain control of the machinery of distribution. This will conflict with co-operative movements and concerns.

“(5) to improve the diet of the public through the social services. This is to be done by providing midday meals to children, including elementary and secondary schools, on the free-meal principle.

I doubt whether this is possible or will be appreciated by the Indian public, on account of the much cursed social prejudices and sentiments. Public restaurants, cafes, and University cafes, and Students' Hostels can profitably take up this matter, for eating the right sort of food. I daresay, that this nutrition and health policy will be one of the means of achieving communal harmony in India.

“(6) to satisfy the dietary needs of the young workers, from 14 to 25 yrs. of age ; and lastly,

“(7) to think about our food we consume, in two ways, viz., (i) that it is satisfying and palatable, and (ii) to examine it as a scientific proposition, and raise ourselves to the level of the scientists ” (pp. 164-173).

To improve the diet of a person, who is without an adequate diet, which should fit in with the local conditions and institutions, the United Nations Conference on Food and Agriculture have suggested—

“(1) Adequate social-security measures, such as family allowances, social insurance, and minimum wages”. In this connection it may be pointed out that India as a whole is *not* yet insurance-minded much less from a society-security point of view. The insurance business, that is done in India to-day is all personal, and at the expense of health and food, of the individual. It is a false economy.

“(2) Some form of *direct action* to make protective foods available free, or at low prices, to the groups with inadequate diets.

“(3) Special attention to assisting such groups as pregnant women, nursing mothers, infants, children, aged persons, invalids, and low paid persons ; and,

“(4) the provision of adequate food for all the people in each nation is primarily the responsibility of the nation concerned, and that this responsibility will be met primarily by national measures” (p. 26).

*Nutrition programme in Canada*¹⁶. It is well worth recording the nutrition programme adopted in Canada. This programme deals with national, international, and local aspects of the food problem. A survey of the eating habits of a cross-section of the population was conducted in 1939. The data were collected from volunteer families on an individual basis within the family. The mother, in co-operation with the workers, ascertained the actual amount of food (by weight), consumed by each member

16. U. S. A. Public Health Reports, May 21, 1943.

of the family, on scales provided by the nutritionists. The nutritionist visited the home periodically during the survey. It was assumed that anything under 70% of the accepted requirements showed a definite shortage.

In this connection, *national nutrition services* were set up. *Consultation services* were also provided on a national basis. *Provincial nutrition committees* were set up, with the provincial Health Officer as its chairman. The committee consists of well chosen non-technical people, who represent as far as possible, the leaders of the provinces. In addition to the provincial nutrition committee, a *Technical Advisory Committee* was also appointed, which included technical personnel in the various related fields: dieticians, home economic teachers, industrial nutritionists, agriculture specialists, public health and other technical persons available. The reason for the two committees was to prevent the provincial nutrition committee from becoming a debating ground on technical phase of nutrition. Then there is the *Local Health Committee*. The local health committee with the help of the provincial nutrition committee prepared nutrition bulletins. These were distributed to the parents through the schools and baby-clinics.

I commend this plan for adoption in the Indian Provinces and States, suiting local conditions. From the above, it is an obvious inference that nutrition is the responsibility of the Central Government. Under the present circumstances of neglected health conditions in India, that *Health* should not have been a 'transferred subject' under the Constitution Act, 1935.

It is gratifying to note that the Government of India from January 1945, have started two nutrition journals *Nutrition* and *Feeding the Worker*. What is wanted is to gain the laudable objective of these nutrition journals, that they should be distributed free to all schools and colleges in India. This will help to carry the food nutrition knowledge to every home.

India has a very capable Central Nutrition Advisory Board, under the expert guidance of Dr. W. R. AYKROYD, whose ungrudging services are ever available to anyone, who seeks them. This Committee should be in close touch with the Central Health and Education Advisory Boards Government of India, who are in charge of the health policy for India and health education for children.

Through a satisfactory diet with a sound national nutrition policy, a new level of health says the United Nations Report, can be attained, enabling mankind to develop inherited capacities to the fullest extent.

These points mentioned above must be noted in framing a nutrition policy (where there is none at the moment) to build health and physical fitness and efficiency.

Nutrition or food problem involves the questions of poverty, employment, price of foodstuffs, agricultural production and distribution; and therefore, it is largely a question of economic distress, which tells on the health of the individual or the community. Health is dependent on nutrition, and nutrition in turn is dependent on agriculture, in producing the right kind of food, to build health and improve efficiency.

Note: The concluding part of this article and the appendices will be published in the next issue.—Ed.

Cases and Comments

Role of Penicillin in the Treatment of "Lung Abscess"

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NAME of the patient—Dr. A. R. Sarkar, M.B., age 54 years, address Sibpur, Howrah.

Brief history of the case with clinical findings and treatment carried on prior to pushing of Penicillin injection is given below:

On 10-11-44 patient got fever with dysentery. There were rales and rhonchi all over the chest. As the patient had previously history of chronic amoebiasis and amoebic hepatitis in 1920 he took an injection of Emetine Hydrochloride gr. 1 S.C. but with no effect. Fever went on increasing and stool was mixed with mucous and blood. Stool was examined and the report was bacillary type of dysentery. Blood examination showed total count of W. B. C. being 11,000 with Poly 80%. Patient took at first Sulfadiazine 16 tabs and later Sulfaguanidine 35 tabs and another Emetine Hydrochloride gr. $\frac{1}{2}$ S. C. Stool gradually became normal in appearance in a fortnight, temperature was normal by lysis and rales and rhonchi over the chest disappeared altogether on the 30th day. After this temperature remained normal for 9 days and the general condition was gradually improving. Blood examination report—Total count of W. B. C. being 7,000 with Poly 54%. Besides previous history of amoebic hepatitis patient was attacked with lobar pneumonia right side in March 1944.

On the 39th day patient complained of a sharp stitching pain on the back below the inferior angle of the right scapula. Next day temperature rose to 100° F. and a dome-shaped swelling was noticed on the right side of the back below the right scapula extending nearly upto lumbar region. Size 5" x 4", pits on pressure. Skin oedematous, glossy. On pressure there was tenderness over the 5th and 6th I.C. space on the back. On percussion—no diminished vocal resonance, air entry was normal and nothing abnormal was detected over the swelling. Blood examination report—Total W.B.C. count being 12,000 with Poly 52%. As the patient had amoebiasis beforehand so amoebic hepatitis was suspected and Emetine Hydrochloride (Burrough's Welcome) gr. $\frac{1}{2}$ each morning and evening was pushed daily for 7 days and after 2 days interval another course was pushed i.e., total gr. 14 in total was given in 16 days. Temperature during this period came down and was between 99° F. to 99.4° F. under tongue in the evening for a few hours. Blood report of total W.B.C. count varied from 10,000 to 12,000 during this period.

On 16-1-45 X-ray plate was taken and on screening diaphragm was found to be moving quite normally and radiologist's report regarding both lungs, liver and heart was normal. A day or two after taking of X-ray plate, foul odour with foetid breath was noticed in the patient's mouth. Expectoration was of foetid odour, slight in amount and consisted of frothy mucous.

Sputum was examined and report was normal. Neither bronchiectatic characteristics nor A. F. B. were found. Swelling on the back was slightly flattened.

On coming back home from X-ray examination patient had slight rise of temperature 99.6° F. for about 3 hours and on the next morning

it was still higher and the swelling was again dome-shaped. Total count of W. B. C. was 13,000. So Emetine gr. $\frac{1}{4}$ was further pushed, altogether total being gr. $16\frac{1}{2}$. But after the last one patient got paresis of the neck muscles, so Emetine was totally stopped and Strychnine Hydrochloride with Calcii Osteline was injected for a few days by which paresis gradually disappeared.

On 22-1-45 patient had temperature with slight rigor and again with rales and rhonchi all over the chest and temperature began to rise more and more upto 103.4°F . with cough and expectorating out abundant mucous and blackish matters with much foetid odour. Patient got much toxæmic and swelling was more dome-shaped. Sulfamerazine tab was prescribed to take per mouth. But after taking 8 tabs patient began to vomit much and urine became scanty, so Soluseptasine injection with interval of one day was pushed but with no effect. After that S.U.P. 36 (B.D.H.) and Resyl (Ciba) were injected in the course of a fortnight but the result was the same as before.

During these periods Glucose 25% 50 c.c. (Albert David) with Calcium Gluconate 10% 5 c.c. (Sandoz), alternately Glucose 25% 50 c.c. with Redoxin Forte 5 c.c. (Roche) were given I.V. to reduce toxicity. Inhalation of oxygen was carried on practically all along.

A couple of days before the treatment with Penicillin sputum was cultured and there was plenty growth of staphylococcus both aureus and albus and a few days after the onset of treatment with Penicillin blood was cultured and there was growth of staphylococcus too.

Now the case was decided as "lung abscess due to post-pneumonic complication" and Penicillin was pushed from the 10th February.

Treatment with Penicillin.—From the 10th February Penicillin (Sodium salt) P. D. & Co., was injected I.M., 10,000 Oxford units in 2 c.c. every 3 hours for the first 24 hours by dissolving the salt with 5% Glucose solution and with proper aseptic precautions. From the next day the strength was increased by 15,000 units in 3 c.c. every 4 hours and omitting the injection from 10 p.m. to 6 a.m. next morning. Total 600,000 units were given in 9 days. The result was that temperature began to fall quickly and practically was normal for 3 days from the 17th to the 19th. General condition was much improved, toxicity disappeared, swelling on the back disappeared totally and the sputum was frothy with slight blackish material. No toxic effects of Penicillin were noticed during these periods. One thing was noticed which was of marked diuresis. Patient had to micturate more or less every $1\frac{1}{2}$ hours about 6 to 8 ounces of urine at each time.

Now the injection was stopped for 24 hours and a second batch (P.D. & Co.) was again pushed on the evening of 20th February. But within 15 minutes patient had again fever 101°F . with shivering and chill. He complained of precordial pain and cardiac dyspnoea was noticed. A blood film was at once taken but no M.P. was found and Poly was 71%. Pulse and respiration were normal, heart sounds—N.A.D., temperature rose upto 103°F . at midnight. Further pushing of Penicillin was stopped. Temperature began to fall gradually on the next day. No possible cause of this sharp rise of temperature was decided as there was no flushing of the face, urticaria and cramps in the abdomen and extremities. Penicillin was again continued with a low dose of 5,000 units with the idea of desensitising the patient and the remaining doses and intervals were practically more or less

the same as before. The third batch (Upjohn & Co.) with more or less same doses and intervals were given from the 27th February upto 1st March. In all 1,301,000 units had been given.

Patient was afebrile from the 25th February and general condition began to improve gradually. Sputum yet consisted of occasional blackish materials for a month and a half.

Complication.—At the end of the 1st week of April patient developed severe urticaria as a late complication of Penicillin therapy. Calcium per mouth and injection were prescribed. Finally autohæmotherapy was done with good effect.

Now the patient is quite alright attending to his normal business.

My thanks are due to DR. GIRIJA BHUSHAN SARKAR, L.M.S., D.P.H., D.T.M., Sibpur, Howrah, for his kind permission to send this case notes for publication and my sincere gratitude to the eminent doctors of Calcutta whom I consulted regarding this case.

Tropical Harvest Conjunctivitis

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THIS short communication is intended for recording my observation of a type of conjunctivitis affecting farmers and paddy-field labourers during the paddy harvesting season, especially in the months of November, December, January and February. This form of tropical conjunctivitis, which is caused through irritation of the conjunctivitis by paddy hairs, makes its manifestation in two stages, namely the acute and the subacute.

In the acute stage, the signs and symptoms generally manifested are those of acute catarrhal conjunctivitis without any discharge.

The subacute stage is characterised by the formation of nodules or phlycteus with the presence of a chronic catarrhal inflammation of the conjunctiva bulbar and palpebral. Round about the nodules would be noticed a prominent engorgement of the conjunctival blood vessels.

The following paragraphs would be devoted to the report of an illustrative case and a brief review of the available literature on ophthalmia nodosa.

Case report.—A Hindu farmer aged about 40 came to my clinic for the treatment of what he called a chronic irritation of his eye, duration about two months. He reported to me that his eye condition was quite normal before the harvesting season; but while working in the paddy fields, something like a paddy hair seemed to enter into his eye, which he rubbed and rubbed in order to get rid of the irritant matter. Since then he began suffering from an eye disease with all the manifestations of catarrhal conjunctivitis.

At the time the patient appeared for examination the examination of the ocular condition presented the following signs—moderate œdema in both the eyelids, with slight hyperemia of the palpebral conjunctiva. The bulbar conjunctiva presented two small reddish nodules in the upper quadrant. Each of the nodules was surrounded with a least of conjunctival blood vessels. The cornea was clear.

The treatment adopted in this case was excision of the nodules followed by thorough washing of the conjunctival sac with Normal Saline lotion with instillation of some antiseptic and sedative eyedrops and ointments.

Review of the literature on ophthalmia nodosa due to caterpillar hair has been observed by several authorities namely PAGENSTECHER, WAGENMANN and SAEMISCH, KNAPP, COLBURN, DE SCHWEINITZ and SHUMWAY, PARKER, MARLOW, GROVE and F. N. KNAPP. Other eminent ophthalmologists who have described this ocular condition are FUCHS, PARSONS, MAY & WORTH and VON HIPPEL.

As early as 1883 PAGENSTECHER is credited with having described the first case of ophthalmia nodosa which he called as caterpillar hair ophthalmia. The next authority was WAGENMANN who reported this ocular condition under the title pseudo-tuberculosis, while the credit of using the term of ophthalmia nodosa was due to SAEMISCH. G. KNAPP reported a case of ophthalmia nodosa in 1897. In modern times DE SCHWEINITZ and SHUMWAY reported a case under the name conjunctivitis nodosa in 1904; while PARKER published his observation of another case of caterpillar hair, ophthalmia in 1910. Latest observers are GROVE (1924) and F. N. KNAPP (1940) who have reported their cases under the names caterpillar conjunctivitis and ophthalmia nodosa respectively.

According to FUCHS, "ophthalmia nodosa arises from the hairs of worms, in particular from caterpillar hair, from other forms also which are said to get into the conjunctival sac. These fine fibres bore into the tissue and after a number of weeks or months cause greyish red to yellowish millet-seed size nodes in the conjunctiva and cornea, in neglected cases in the iris as well along with severe inflammatory appearance. Such nodes have been demonstrated even in the deep portions on anatomic examinations. The nodes which are very similar to tubercle nodes in their histologic make-up, however, contain the characteristic caterpillar hair; in time the fibres are again thrown off or re-absorbed. The disease runs a very long drawn-out course and severe cases may lead to phthisis bulbi (V. HIPPEL, Jr.)."

"The treatment of absolutely fresh cases, immediately after disinfection of the conjunctival sac, consists in a thorough mechanical cleansing, later the removal of the hairs in so far as they are visible in the tissue, and an excision of the node."

According to PARSONS, "ophthalmia nodosa is a nodular conjunctivitis which may be mistaken for tubercle-pseudo-tuberculous disease of the conjunctiva. It is due to the irritation of the hairs of certain caterpillars, and therefore commences in the later summer months. Small, semi-transparent, reddish, or yellowish grey nodes are formed in the conjunctiva and sometimes in the iris. On microscopical examination, hairs, surrounded by giant cells and lymphocytes, are found."

"The nodules in the conjunctiva should be excised, otherwise the condition is treated on general principles."

Comment and conclusion.—A case of tropical harvest conjunctivitis caused by irritation through paddy hair is reported. Nodular conjunctivitis or ophthalmia nodosa due to caterpillar hair has so far not been reported in the ophthalmic literature. Such cases are of uncommon occurrence. A brief review of the available literature on ophthalmia nodosa is given.

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A Case of Acute Retention of Urine

DR. SACHIDANANDA DASH, L.M.F.,

Somra P. O., Bengal.

I WAS called in to see a female (36), a wage earner, on 1-4-'44 for the treatment of the following chief complaints:—(1) Complete retention of urine of 3 days duration; (2) constipation of 2 days duration; (3) agonising pain and swelling in the pelvic region.

The patient was running a pregnancy of 3½ months. She was a multipara with three surviving children. Abdominal examination showed a rounded swelling extending up from behind the symphysis pubis to about 2½ inches above the umbilicus and the uterus could not be palpated.

The patient was profusely perspiring and was very weak with thready pulse. As the party refused any (cardiac stimulant) injection, soap and water enema, I gave her an ounce of brandy in a glass of Glucose water and carefully catheterised the patient. About 160 ozs. of urine was drawn. After the bladder was relieved the uterus could be palpated at the level of the symphysis pubis. On vaginal examination, I found that the cervix was pushed high up behind the symphysis pubis and the posterior vaginal wall pushed forward. The body of the uterus was absent from the normal position on bi-manual examination but could easily be felt on rectal examination. *A case of retroverted and retroflexed gravid uterus.* With the help of the speculum and my finger I replaced the uterus, and as the party could not afford even a pessary, I gave her simply a mixture containing Pot. Citras 3 p, Hexamine gr. x and Tr. Hyoscyamus 3 p, t.d.s. and advised her to take perfect rest. I was glad to see her passing urine naturally from the second day. But on the 5th day her trouble recurred for she did some active field work and her bladder was again relieved by a catheter.

On the 10th day, I did a vaginal examination and found the gravid uterus in normal position (in the meantime "spontaneous replacement" did occur). The said mixture was given twice daily for another 3 days. Never again did she develop a distended bladder. She went to full-term and was delivered of a healthy male child.

References:

1. Green Armytage and Dutta—A Text-Book of Midwifery in the Tropics, (1936).
2. Johnstone, R.W.—Text-Book of Midwifery, (1937).
3. Dr. Ramgoti Banerji—Lecture-Notes on Midwifery, (1938).

Giardiasis in Adults

P. K. MENON, L.M.P.

78, Field Ambulance, S.E.A.C.

It was believed that only in children giardia infection was pathogenic; since the introduction of specific treatment, it is established beyond doubt that giardia infection is not only pathogenic in adults but it produces varying kinds of symptoms from mild abdominal discomforts to acute dysentery. In an examination of 190 stools from a group of soldiers ranging from 20 to 45 years of age, giardia lamblia was present in 39 cases and out of these, 22 had only giardia lamblia in the stools—the others were a mixed infection, such as vegetative amoeba, encysted amoeba, ankylostomiasis ascaris etc., etc.,

Giardia lamblia (enterica or intestinilis) is a flagellate with colourless granular cytoplasm, two nucleus (seen only in a stained specimen) and with four pairs of flagellam, measures ten to twenty microns by 5 to 15 microns and inhabits duodenum, small intestine and caecum; its cysts oval in shape 8 to 12 microns by 7 to 10 microns and colourless has 4 nucleus with a well-defined cysts wall. In a fresh stool the trophozoite is actively motile like a jitterberg dancer—but soon loses its flagellam and its motility diminishes with time; its motility was seen even after 14 hours of passing stools.

Symptoms.—1. *Pain in the abdomen*:—This was almost a constant feature. It might be epigastric, hypochondriac, or iliac especially in the right side. Its duration varied—some patients gave an history of occasional attacks of pain in the abdomen of long duration—one patient gave an history of occasional pain in the abdomen of six years' duration. Out of the 22 cases 19 had pain in the abdomen.

2. *Diarhœa*:—This was another constant symptom. The stools were generally watery with plenty of undigested food particles; there might be mucous or blood mucous like dysenteric stools. Out of the 22, 11 had watery motions; 5 had watery motions with mucous, and 2 had watery motions with blood and mucous; the remaining were normal-looking formed stools; generally the frequency did not exceed more than 10 in 24 hours and there was no tenesmus in any case.

3. *Flatulence*:—Majority gave an history of fullness in the stomach of long duration; although their appetite was quite normal, they felt that their food was not well digested and they felt very heavy after meals.

Signs.—These were very few—there might be tenderness in the epigastrium, hypochondrium or iliac regions especially in the right side. There might be rigidity of the abdomen—in my series there was rigidity of the right rectus in two cases; at times the abdomen might be bloated.

Diagnosis.—This can be made and confirmed only by microscopic examination of fresh stools; in a fresh specimen its motility can easily be identified. The writer is of opinion that there may be definite correlation between the number of giardia present and the severity of signs and symptoms.

Treatment.—In 1937 BRUMT & MARTIN introduced Atebrin (Mepacrine) as almost a specific; Mepacrine (.1 gm.) tab tds for 8 days was found to eliminate the infection in almost all cases; the effect of Mepacrine was seen not only in the relief of signs and symptoms but was seen in the daily microscopic examination of stools; by the 4th day in the majority of cases there were no giardia seen in the stools; if on the 9th day giardia was still

seen in the stools a course of arsenic by mouth such as Stovarsol or Amœbiarsan (.25 gm.) 1 tab bd. for 6 days was found to be quite sufficient to eradicate the infection.

The following are 2 illustrations:—

1. K. S., aged 26, admitted on 6-8-44 for pain in the abdomen and passing loose motions of 3 days' duration. Physical examination revealed only slight tenderness and guarding of the right side of the abdomen. The stools on the first day was semi-solid, greenish in colour with mucous without any blood; it was acid in re-action. On microscopic examination there was no protozoa, cysts or ova seen, but giardia lamblia, pus cells and undigested muscle fibre were seen; on the 2nd day it was watery with mucous, and microscopically there were only giardia and pus cells present. He was put on Mepacrine .1 gm 1 tab. tds and milk diet; on the third day there was no pain or tenderness in the abdomen and his stools were formed without mucous; on the 4th day there was no giardia present; he was put on full diet and discharged on 15-8-44.

2. K. J., aged 22, admitted on 9-8-44 for pain in the abdomen and passing of stools with blood and mucous of 2 days duration; he had 9 motions on 8-8-44. There was tenderness in the left hypochondrium—his stools on the 9th was semi-solid, normal coloured with mucous and blood—it was acid in re-action. Microscopically only pus cells and R.B.C., were seen; on the 10th his stools were watery with undigested food particles and contained mucous and blood; microscopically giardia R.B.C., and pus cells were seen; he was put on mepacrine .1 gm. 1 tab tds and milk diet. On the 12th his stools were formed without blood or mucous and on the 13th there was no giardia seen and he was discharged on 20-8-44.

Discussion.—It will be interesting to know the exact pathology in giardia infections; since it is not a fatal disease it will not be easy. Can giardia produce dysenteric ulcers? Or, does it by its mere numbers produce a state in the mucous membrane of intestine for other organism to precipitate the syndrome? Whatever is the pathology, the eradication of giardia relieves the patient.

I thank Private JIMMY LONSDALE, R.A.M.C., for his assistance.

Reference:

1. L. E. Napier—Principles and Practice of Tropical Medicine.

A Case of Chronic Arthritis

Dr. (Mrs). T. JOSEPH, L.S.M.F.,

Lady Doctor, P. O. Dalmianagar, Bihar.

One patient named Kabuthan, aged about 40, was admitted to the Dalmianagar Hospital on 15-3-45.

General complaints were swelling of all the joints including the small joints of the hands and feet. Pain in all the joints—unable to straighten her limbs or clench her fist. Duration 6 months.

On examination.—Effusion of all the joints present. Ankyloses of the knee and elbow joints. Metacarpal tarsal and phalangeal joints were extended. Patient could only lie on her back. She could not move to this side or that side without help and that too with agonising pain. Copious

white discharge. P.V. present but no gram-diplococci present. No specific history. Of course the blood was not examined for W.R. There was general wasting of all the muscles present.

Treatment.—She was given a course of M.B. 693 tablet by mouth; local douching and urea Sulphazide injections were given. With this treatment the swelling came down to a certain extent but the pain and ankyloses were still continuing. She could not eat her bread or hold a glass of water to her lips. She used to spend sleepless nights. The other patients in her room used to complain that they could not sleep in the night because the patient was crying the whole night.

After the course of M.B. treatment she was given the old method of treatment, Salicylates by mouth, Scott's dressing and massaging the stiff joints with liniments. With this also there was not much improvement. Then she was given a course of I. V. Iodine solution; 10 injections were given. With this she could sit up, if supported, by experiencing a sort of shooting pain. With great difficulty she used to attend nature's call in the bed pan. Her progress was very slow.

After all these treatments, I got disgusted and told the relations to take her away and she can get the further treatment at home. But they were unwilling as they had already nursed her for 6 months at home. Again I kept her for few days more.

Then I happened to read the article in the 'ANTISEPTIC' and I wanted to try that on 1-6-45. I kept the patient on a milk-diet and gave her Alkaline mixture. She was given 0.25 c.c. of the T.A.B. vaccine with 5 c.c. Normal Saline solution I. V. After half an hour of the injection she got severe shivering, temperature rose up to 103°F.—vomiting, diarrhoea and urticaria developed all over the body. Patient's condition was so bad that I had to give I.V. Glucose and Coramine and Adrenalin 1/1000 1 c.c. I.M. I got a bit nervous and called the C.M.O. But he gave me encouragement. She came to the normal condition after 3 hours; but head-ache and fever were still persisting. In the evening temperature came down to 100°F. By the next day there was no temperature but vomiting was still persisting. So the treatment was postponed. Due to the severe shock I got nervous and got discouraged to complete the course of treatment. But the C.M.O. was kind enough to encourage me to complete the course of treatment. So I gave the next injection on 4-6-45. The patient had slight shock and the temperature rose up to only 100°F. Then I got encouraged and the 3rd injection was given on 6-6-45. The 4th injection was given on 8-6-45. Every injection was increased by 0.25 c.c. but the 3rd and 4th were of the same quantity. After this we were surprised to tell you, friends, that the patient could walk without any support or help. She was discharged cured on 12-6-45. She went up to the carriage walking and she came to the ward from the carriage on a stretcher.

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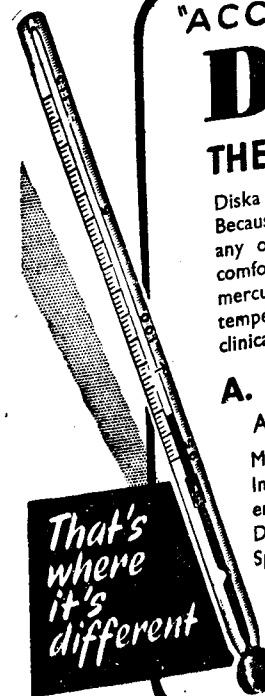
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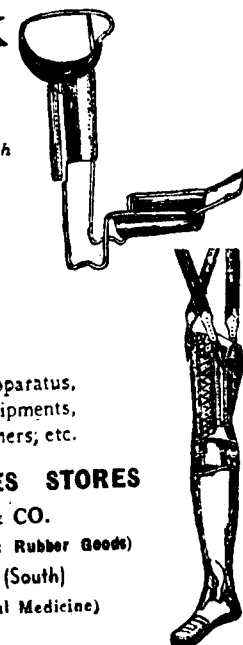
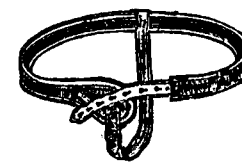
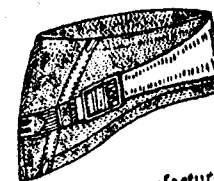
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Fight the Big Three

TUBERCULOSIS, Leprosy and Cancer are the three most dangerous scourges that ravage the land from one end to the other. They are prevalent all over the country, taking a heavy toll of human lives. The country has now begun to realise the seriousness of the problem and the members of the profession and the lay public are taking serious steps to wage a relentless war against these diseases so as to stem their onward march. In the last few months several meetings have been held all over the country and the incidence of these diseases and the havoc they play are unfolded by research workers and others in all their nakedness. If only the Governments in the land realise their responsibility to the people and come forward to help prosecute this war with all their strength and resources, the battle will be almost won.

Let us take tuberculosis first, the disease which is insidious in its origin and dangerous in its climax. To Lady LINLITHGOW belongs the credit for having started an energetic campaign to fight this disease. To her must go the credit also of starting anti-tuberculosis organisations on a country-wide scale and the establishment of a number of clinics. The specialists whose advice she sought as to the best means of eradicating this dangerous disease from the land made the practical and realistic suggestion that clinics should, in the first instance, be started at all important places so that early cases can be detected and nipped, as it were, in the bud. They thought that by this means the spread of this disease can be stemmed. Provincial and district anti-tuberculosis organisations have been started all over the country, and the Provincial Governments seem to think that they would have discharged their responsibility to the people in this behalf if they allow full play to these organisations in the matter of starting clinics as and when required. The public are not satisfied with this half-hearted measure and they are agitating for the starting of tuberculosis Sanatoria in various places in the Presidency. The Anti-Tuberculosis Association, while recognising the justice of this insistent demand of the public and conceding that the existing Sanatoria are insufficient to meet present day needs, counsel the postponement of the carrying out of a large scale programme to a later date. May be, the Association

thought that the heavy drain on the exchequer for the prosecution of the war will not permit of the execution of a large scale and broad-based programme of expansion at an early date. The Government who are ever on the alert to find out loopholes for escape appear to have taken full advantage of it and in the scheme of post-war reconstruction planned by them have provided themselves with twenty year's time to provide additional Sanatoria and hospital accommodation at certain selected centres. The War against tuberculosis is no less important or damaging than the war against militarist Japan and it is the duty of the public to carry on a ceaseless agitation for the opening of more Sanatoria and more clinics within the next five years.

Next comes leprosy. Thanks to DR. COCHRANE and his devoted band of earnest and willing workers, the problem of leprosy has come to the fore in this presidency and public attention is concentrated on it. The public owe a deep debt of gratitude to DRs. LEONARD ROGERS, MUIR and COCHRANE for the great services they have rendered in this behalf. The leper has, in all ages, been under a social stigma. To escape from this stigma attaching to them, sufferers from this disease try to conceal its onset as much as possible, however much efforts are made to preach to them the value of early disclosure and proper and effective treatment. In a recent article in our distinguished contemporary, *The Indian Medical Gazette*, DR. COCHRANE has described what, in his opinion, should be a comprehensive anti-leprosy scheme. He opines that it is very necessary to establish leprosy institution in every district where the disease is prevalent on a large scale, for the segregation and treatment of open cases. He urges that in the planning for post-war reconstruction leprosy control should be assigned a very important place and its teaching should be placed on a sound footing. This subject does find a place in the post-war reconstruction plan of the Madras Government, but the timing is so slow so deteriorated as to call for a thorough overhaul. This is not the way in which such a serious problem should be tackled. Immediate and effective measures on a wide scale are the need of the hour, and we trust the Government of Madras will revise their programme in the light of the above observations. DR. COCHRANE is perfectly right in rejecting the present day view of many that a fortnightly course in leprosy treatment is enough to qualify one to become a Leprosy Expert. A disease that has baffled mankind for ages and is still baffling them in spite of all the advances made in medical science is not one that can be mastered in a fortnight's slipshod course of instruction. What is required is a thorough training in the treatment of this disease. As DR. COCHRANE has suggested, survey units should be organised for urban and rural areas, and in major general hospitals, and district hospitals, clinics should be established where treatment on scientific lines can be given to the patients. A survey made in Saidapet some time back revealed the wide prevalence of this disease. Similar surveys in other areas are bound to help the Government and the people will realise the magnitude of this problem. The importance of the detection of leprosy in children and giving them effective treatment before the disease assumes serious proportions, urged by COCHRANE, is one which will be widely endorsed. In regard to derelict and deformed cases, DR. COCHRANE deplors that the medical profession has so far failed to appreciate the difficulties inherent in taking care of these unfortunate people, especially if the disease is far

advanced and if the patients are either blind or are crippled. He stresses the necessity of building infirmaries where such people can be segregated and prevented from spreading the disease far and wide. Rightly does he point out that no modern State, calling itself civilised, can tolerate the position as it exists to-day. A great deal has been written and spoken on the need for propaganda. May be, it is a difficult and delicate task, but it is none-the-less necessary and should be undertaken on a wide scale without serious delay. It should be impressed on the public mind that all kinds of leprosy are not serious, that early diagnosis and treatment are necessary if the disease is not to be allowed to play havoc, that children should be prevented from having contact with diseased persons though they are near and dear to them, and that fear of social stigma should not be allowed to stand in the way of early disclosure of the disease and proper and effective treatment. We agree wholeheartedly with DR. COCHRANE's view that in the fight against leprosy, the right type of officers should be selected—men who are capable and well-trained, and, we may add, sincere and willing. It is only by the effective combination of all these measures that the problem of leprosy can be tackled and tackled successfully too.

Now we turn to cancer. It invades normal organs, interrupts the routine of their existence and finally destroys them. Like the outlaw in real life, cancer must be either destroyed or removed. In spite of enormous gains in medical progress and in the doctor's knowledge of cancer, there are still gaps in the scientific story of this disease. The course of cancer is still not fully known. In spite of vast quantities of work, in spite of man's ability to cause cancer in animals through the use of chemical irritants and by other means, in spite of seemingly conclusive evidence that all cancers originate in one cell, the actual course is not yet discovered. Nor is everything known about its cure. We find very little or no attention paid to the problem of cancer in the post-war development plans of the Madras Government. We therefore welcome the importance given by Major-General HUBAN, the Surgeon-General with the Government of Madras, in inaugurating the other day in Madras the South Indian Branch of the Indian Radiological Association, to this problem. He stressed the need for carrying on anti-cancer campaign. It is all the more necessary in view of the fact that patients afflicted with this disease approach the doctors at a very late stage when very little can be done. Early diagnosis will go a great way in helping cure. The suggestion made by the SURGEON-GENERAL that cancer clinics should be established in various centres should receive the immediate attention of Government. Whether the Surgeon, or the Radiologist alone, or both together, should endeavour to cure cancer is a moot point on which there may be differences of opinion. But in the early diagnosis and proper and effective treatment of cancer both the Surgeon and the Radiologist have an important part to play. Major-General HUBAN thinks that the best solution for the cancer problem is the starting of separate institutes where all possible radium and X-ray facilities are made available and where the general surgeon, the pathologist and radiologist can collaborate in successfully treating the disease. The ideal clinic, in his view, is probably a special hospital with its own beds and out-patients with a radiologist in charge and a whole-time staff of clinicians and research workers. Such a clinic should help advance radium and X-ray methods in the treatment of this disease. May be, the provision of a cancer clinic requires enormous outlay by way of

capital expenditure and large sums for its maintenance. But this should not deter the Government from embarking upon such an important and urgent project. We trust the opinion of the SURGEON-GENERAL would be given the weight it deserves and steps taken early in this behalf.

Tuberculosis, Leprosy and Cancer have to be fought out with all the weapons in our armoury and we trust that the Government of Madras will revise their hotch-potch post-war plans in the light of the above observations and in accordance with the opinion given by experts quoted above.

Gleanings From Medical Press

MEDICINE and THERAPEUTICS

Valvular murmurs in rheumatic heart disease.—Soft blowing systolic murmurs heard only or heard best at the third and fourth left interspace just to the left of the sternum are present in normal persons as well as in persons suffering from rheumatic fever. The significance of such murmurs is extremely difficult to evaluate. The mechanism of the production of such murmurs in normal persons have never been satisfactorily explained. In patients suffering from rheumatic fever, the presence of such murmurs has been explained by an early lesion of the aortic valve. Such murmurs are to be distinguished from high pitched, harsh systolic murmurs heard over the myocardium, with maximum intensity in the region of the apex of the heart. These are frequently found in patient's suffering from active rheumatic carditis. The usual pathologic explanation for the later variety is a dilatation of the mitral ring due to myocarditis, associated with roughening of the edges and commissures of the mitral valve.

The important point about systolic murmurs in the diagnosis of rheumatic fever is that alone they are unreliable means for such diagnosis. On the other hand, diastolic murmur i.e., a short early blowing murmur, heard best over the second right interspace, over the sternum or over the third or fourth left interspaces, or a low pitched rumbling crescendo murmur followed by an accentuated first sound at the apex are highly significant in the diagnosis of rheumatic heart disease. Systolic murmurs are apt to be more significant when they change from day to day and are particularly significant, when they appear during the course of rheumatic fever and were known not to have been present prior to that event. Thus the changing character of the murmur, its harshness, and its high pitched character, with minimum intensity in the region of the apex, tend toward a diagnosis of an organic lesion.—J.A.M.A.

Testosterone propionate in the treatment of thyrotoxicosis.—As three of the characteristic effects of thyrotoxicosis—increased urinary excretion of nitrogen and of creatin, and a fall in weight—are antagonized by

testosterone propionate, L. W. Kinsell, S. Hertz, and E. C. Reifstein, Jun. (*Journal of Clinical Investigation*, November 1944, 23, 880) have investigated the effect of testosterone propionate and of methyl testosterone in three patients with thyrotoxicosis (2 women and 1 man). Testosterone propionate induced a positive nitrogen balance and caused a gain in weight; methyl testosterone had a similar initial effect on nitrogen balance, but this was not sustained. The hypercreatinuria of thyrotoxicosis was decreased by testosterone propionate but increased by methyl testosterone. Testosterone propionate improved the clinical condition of the patients, but methyl testosterone aggravated their condition. In view of these findings it is suggested that testosterone propionate may prove of value as part of the pre-operative treatment of thyrotoxicosis in patients who are markedly emaciated. The recommended dose is 12.5 mgm. daily. As testosterone propionate has no significant effect upon the basal metabolic rate, it would probably be advisable to administer iodine (or thiouracil) at the same time. The main benefit of testosterone propionate would be to prevent the liver damage which is found in fatal or severe cases of thyrotoxicosis; this damage it would prevent or ameliorate by causing a replacement of the depleted protein stores of the liver.—*Practitioner*.

The effect of vitamin E on impaired kidney function.—A preliminary report of the results obtained by the administration of vitamin E (ephynalsynthetic α -tocopherol) to thirteen women suffering either from chronic nephritis or impaired renal function, such as chronic oedema not of cardiac origin, or hypertension, is given by E. Shute (*Canadian Medical Association Journal*, February 1945, 52, 151). Some of the cases were post-puerperal, the pregnancy having been complicated by toxemia. As a rule, two separate tests for kidney function were made before the institution of treatment, which consisted of the administration of 25 mgm. ephynal daily, for two weeks. At the end of this time the two-hour test was repeated in order to assess improvement. Benefit

was obtained in ten of the thirteen cases treated: the improvement developed quickly but was transient unless therapy was continued, and, in most cases, it was limited to the tubular system of the kidney. In addition to the cases referred to above, a man of forty-three, with a blood pressure of 180/100 mm. Hg. severe albuminuria and oedema, was given one tablespoonful of Kelly's wheat germ oil per day. After seventeen days of this treatment the albuminuria was halved and the blood pressure was 150/80 mm. Hg. Two months later the blood pressure had fallen to 137/75 mm. Hg., the oedema had disappeared, and there was a decrease in weight. Three months later the wheat germ oil was reduced to one desertspoonful daily. The improvement continued, and nine months later, i.e., fifteen months after the institution of treatment, the vitamin E therapy was discontinued. One year later albuminuria was one plus, and five months later there was only a faint trace of albumin present. The author states that the results obtained in this case may indicate a role for vitamin E therapy in the treatment of nephrosis.—*Practitioner*.

Skodiac resonance.—Skodiac resonance is found over the lung immediately above an effusion, not over the effusion itself. The normal lung is an elastic organ and is stretched to fill the pleural cavity; when part of that cavity is occupied by fluid the lung is at first relaxed. This relaxation is said to be responsible for the peculiar 'boxy' note heard on percussion above an effusion. When the fluid fills the pleural cavity the lung becomes completely collapsed and finally compressed. The percussion note is then dull, but very occasionally hyper resonance can occur over a chest-full of fluid.—*B.M.J.*

Prostigmin in arthritis.—The claim has been made that injection of prostigmin combined with atropin relieves the pain of rheumatoid arthritis. Where the pain is due to spasm of the muscles associated with affected joints relief is given because the effect of the drug is to relax spasm, but in the absence of spasm (and it is not a common feature in true rheumatoid) better results are obtained by the use of more common analgesics such as aspirin, phenacetin, codeine, etc., alone or in combination. In cases where cramp is a troublesome feature prostigmin has also given prompt relief. It is therefore reasonable to give prostigmin and atropin where spasm is present, but when the spasm has relaxed it is desirable to prevent its recurrence by suitable physical measures, such as the application of light splints, rather than to continue the administration of such powerful drugs, which have been observed to produce undesirable effects if administration is prolonged.—*B.M.J.*

The treatment of migraine.—Numerous drugs with different pharmacological actions

have been used in the treatment of migraine e.g., acetyl salicylic acid, barbiturates, ergotamine tartrate and inhalations of trichloroethylene. The latest to be introduced and still on trial is urea.

There are many possible aetiological factors in migraine. Some may be allergic in nature. Dilatation of the cerebral or cranial vessels may be the cause in some cases. Vaso-constriction may occur in others, and here nicotinic acid has been tried. Migraine has also been explained on the basis of increased intracranial pressure. Urea and possibly other diuretics may, in such cases, by their dehydrating action, correct the temporarily disturbed balance that results in the migraine attack; the diet should be rich in protein and poor in fat and carbohydrate, free from salt and with restricted fluids.

The use of urea arose from an accidental cure by Brown (1943) of a patient who, having suffered from severe headaches for years, was being investigated with a view to a cerebral decompression being performed. The headaches disappeared when 15 grammes of urea were administered for a urea concentration test. Since then urea has been given to patients with migraine according to the following scheme: 20 gr. twice a day for a week, subsequently 20 gr. daily in one dose for an indefinite period. The headache usually disappears after a short course of treatment or is modified sufficiently to become bearable provided treatment is not discontinued. Obviously much more investigation will be required to evaluate this use of urea. The compound is fortunately little, if at all toxic.—*J. Post-Graduate Medical Association, Cape Town*.

Sulphonamides and otitis media.—Local treatment by sulphonamides is irrational, because it is not feasible to get the drug in contact with the infection, and because it is inactivated by pus. Indiscriminate administration by mouth is condemned, because it tends to mask symptoms, and may lead to permanent impairment of hearing. Sulphonamides should never be given in inadequate dosage or in the presence of undrained pus. Therefore it is wise to employ conservative treatment, including myringotomy, if indicated, withholding sulphonamides until it appears that the infection is not likely to resolve otherwise. In that event the patient should be kept in bed and given the full doses under the usual precautions, and watched until clinically, and if necessary radiologically, complete resolution has occurred.

Various sulphonamides have been applied locally in chronic otitis media, either in solution or powdered form. Obviously they are contra-indicated in the presence of cholesteatoma, and of widespread bony necrosis with granulations, and they cannot be expected to succeed with insensitive organism such as *B. Proteus* and coliform group.—(*B.M.J.*)

Bromides and barbiturates.—Bromides have a depressing action on the entire

nervous system; and the same is believed to be true of barbiturates, though some authorities think they have a selective action on mid brain vegetative centres. Their neurological effects are slightly different. Nystagmus, convulsions, and a positive Babinski are fairly frequent in cases of barbiturate intoxication, but they have not been reported in bromium. The disturbances of motility in cases of barbiturate poisoning have a cerebellar character and are different from the apraxic awkwardness observed in bromide cases. Curran considers that paraphasic speech disturbances, visual hallucinations at a distance, confabulatory memory defects, and some other symptoms are of diagnostic value in the oblivion of bromide poisoning.

The treatment of bromide intoxication consists in stopping the drug, forcing fluids, and giving sodium chloride. In the treatment of barbiturate intoxication of severe degree gastric lavage is followed by the administration of 30 to 60 grains of magnesium sulphate. Intravenous dextrose 5% is recommended. Dicrotoxin has been found valuable by many workers, and a 3% solution should be given at the rate of 1 c.cm. a minute until corneal reflexes reappear and the patient responds to powerful stimuli. It will have to be repeated at hourly or two-hourly intervals and 3 to 6 mg. an hour will be required.—*B.M.J.*

Penicillin by mouth.—A report of the results obtained by the administration of penicillin by mouth in conjunction with a buffer salt (trisodium citrate) is given by P. Gyorgy, H. N. Vandegriff, W. Elias, L. G. Colio, F. M. Barry, and J. D. Pilcher (*Journal of the American Medical Association*, March 17, 1945: 127, 639). The first series treated comprised eighteen males with gonococcal urethritis and five children (girls of ages ranging from three weeks to six years) with gonococcal vaginitis. The dosage varied from 10,000 units every three to four hours in children, to 15,000 to 40,000 three-hourly in adults, in combination with trisodium citrate 1 to 5 gm. per dose. Cure was obtained in all cases in one to three days. Three other cases not included in this series (girls, aged two to five years) were given 10,000 units of penicillin with 1 or 2 gm. sodium citrate four-hourly. After a total dosage of 200,000 to 300,000 units there was prompt, but only temporary, clinical cure, and a repeat treatment had identical results. The same doses given by intramuscular route three-hourly, resulted in permanent cure in each case. It is pointed out that either the oral doses were too low or the oral treatment should have been continued for a longer period, possibly with administration at shorter intervals. Gonococcal conjunctivitis in three infants of ages seven, seventeen, and forty days, was treated by oral administration of 10,000 units of penicillin with 1 gm. sodium citrate, three- to four-hourly (total doses, 140,000, 180,000 and 200,000 units respectively); the effect was prompt and smears were negative after

three to four doses. A case of interest is that of a three-year old boy with chronic otitis media, with perforation and suppuration, which failed to respond to sulphathiazole. He was given penicillin by mouth, 10,000 units with 2 gm. sodium citrate, three-hourly for twenty doses, resulting in complete cure. In order to test the penicillin blood concentrations obtained by oral administration of penicillin, a number of children suffering from various illnesses (post-operative appendectomy, post-polio myelitis, diabetes mellitus, tracheotomy, nephritis, tuberculosis, pneumonia and other conditions) were given penicillin by mouth, thirty minutes before breakfast, on a fasting stomach, in conjunction with sodium citrate and also without this buffer. It was found that when penicillin with sodium citrate was given by mouth thirty minutes before breakfast the absolute penicillin blood levels were increased and the presence of penicillin in the blood prolonged (with one exception penicillin could be detected in the blood four hours after ingestion). When ingested on a fasting stomach four hours before the first meal the effect of the buffer salt was less pronounced but still apparent. In this investigation the penicillin calcium used was either in the form of the usual dry preparation in a bottle, or in the form of tablets made up with sodium citrate (penicillin calcium 13,000 units and sodium citrate 1 gm. per tablet).—*Practitioner*.

Infective hepatitis.—This report is based on a clinical study of 54 patients with infective hepatitis, none of whom had received yellow fever vaccine and in none of whom could the diagnosis of spirochaetal jaundice (Weil's disease) or other biliary tract disease, be established. All of the patients were located on the island of Puerto Rico. The disease as seen there is characterised by an insidious onset and mild clinical symptoms. There was anorexia in 88 per cent., nausea in 87 per cent., abdominal discomfort in 37 per cent., vomiting in 27 per cent., and general malaise in 25 per cent. Diarrhoea, constipation, abdominal distention and headache occurred less frequently. Jaundice appeared on the first day of illness in 23.2 per cent., and in some individuals was the only objective or subjective symptom which developed. Clay-colored stools were evident in 22.2 per cent. of the patients. The liver was enlarged to a varying degree in 40.7 per cent., and the icterus index averaged 47.6. The blood counts were within normal limits as was glucose tolerance. The blood cholesterol, hippuric acid excretion, serum cholesteins and total non-protein nitrogen and urea nitrogen also fell into normal range and limits. The days spent in the hospital varied from 11 to 101 days. The largest number of patients were hospitalized from 20 to 35 days. Treatment in all cases was entirely symptomatic and included infusions of 10 percent glucose in normal saline during the period of anorexia, nausea and vomiting. The diet was high in carbohydrate and protein, and low in fat. Bed rest was considered

an essential part of the treatment. Evidence of residual hepatic damage in this series of cases of infective hepatitis was not found. The most striking feature of the clinical course was the mildness, the patients being incapacitated for the most part merely by virtue of the objective evidence of jaundice.—*U.S.O.W.I.*

Mechanism of fever.—In fever due to infection the body's thermostat is set at a higher level, mainly as a result of a raised threshold for heat loss. This is believed to be the result of the action of bacterial toxins on the heat centre or centres; but the reaction is a purposive one, as the biological activities of the tissues are increased by the rise in temperature, whereas the conditions are less favourable for some of the pathogenic micro-organisms. The activity of the leucocytes is increased and antibody production is stimulated. This hypothesis has led to the use of artificial fever in the treatment of a variety of diseases. The crisis in pneumonia occurs shortly after the appearance in the serum of a positive agglutination

reaction for the pneumococcus responsible for the infection, and it is probable, therefore, that a critical fall of temperature is generally due to the neutralization of toxins and the sudden lowering of the threshold for heat loss.—*B.M.J.*

Exhaustion syndrome.—A syndrome not found described in the literature has been observed—neuro-muscular exhaustion followed by atrophy and fascicular twitching requiring months for recovery. During a period of euphoria with oblivion of fatigue a person continues to work until he suddenly realizes complete neuro-muscular exhaustion approaching paralysis. Psychomotor restlessness continues, pains and tenderness are prominent, the muscles become flabby while they twitch and atrophy; paralysis supervenes with great loss of body weight. Months are required for recovery. In most severe cases residuals remain; exacerbation may appear after relatively slight exertion. The patients are not neurasthenic; they rather ignore their disability and heroin lurks danger.—*Nielsen in J.A.M.A.*

SURGERY

Posterior herniation of lumbar intervertebral disks.—Munro believes that a clinical diagnosis of a posterior herniation of the nucleus pulposus of a ruptured lumbar intervertebral disk which is based only on the history and physical and neurologic examinations, if unconfirmed by other objective findings, is at best only a "possible" diagnosis. Surgery is not justified under such circumstances. If one can demonstrate a sensory deficit that corresponds to the peripheral distribution of a low lumbar or upper sacral root, together with atrophy and loss of ankle jerk, in the same leg, a diagnosis of irritation or compression of this particular root is justified. If in addition there is a history of intermittent attacks of pain in the back with radiation to any part of the leg, especially to the lower part of the leg, which is associated with initiation or increase of the typical pain by coughing, sneezing or straining or by back motion or lifting, and if these attacks started after a back injury, back strain, lifting strain or fall, a posterior herniation of either the fourth lumbar or lumbosacral disk must be seriously considered as a cause of the radiculitis. This cannot be regarded as a certainty, however, unless confirmed by other and more accurate data. A positive straight leg raising or Lasague test, limitation or loss of back motion, a change in the lumbar curve, spasm of the erector spinae muscles and local tenderness in the lumbosacral area indicate only that the patient has some trouble with the lower part of his back, lumbosacral roots or cauda equina and neither confirm nor deny the diagnosis of a herniation. A history and examination such as given, if accompanied by a partial or complete dynamic block or an increase in the total protein of a sample of cerebro-

spinal fluid, properly collected from below the level of the block, or both of these, justify a diagnosis of irritation or compression of any part or all the cauda equina and a probable diagnosis of either an intraspinal tumor or a midline posterior herniation of a lumbar disk. Final differentiation must at least await myelography and in many cases operation. The level of herniation is usually not determinable on the basis of pure clinical data. Multiple herniations cannot be diagnosed without adequate pre-operative visualization of the lower subarachnoid space. Certain diagnosis, both concerning the presence of a herniation or herniations and concerning the level, depends on adequate visualization of the lumbosacral subarachnoid space by some opaque contrast medium. Skiodan in 20 per cent. solution has proved satisfactory for this purpose.—*J.A.M.A.*

Calcification in supraspinatus tendon.—Pain in the shoulder associated with skin-graphic evidence of calcification in the tendon of supraspinatus is a well recognized condition. There is no doubt that the essential lesion is damage to the tendon, which may be the result of injury but occurs not infrequently in its absence. Apparently the tendon of the supraspinatus may degenerate with advancing years simply as a result of the trauma of normal use. The calcification is secondary. The exact cause of the pain and stiffness is a little obscure, but it seems likely that the calcareous deposit produces a subacromial bursitis; excision of the calcified area generally relieves the pain, though some weakness of abduction may remain as a result of the poor condition of the supraspinatus tendon. It has recently been found that the deposit

and seldom involves the upper part of the genital tract. Before puberty the vaginal epithelium is extremely susceptible to invasion by gonococci, though the cervix offers a successful barrier to the ascent of the organisms. Thus, clinically primary vaginitis in the immature is the common manifestation of gonorrheal infection. Cervicitis, salpingitis, oophoritis and peritonitis are frequent pathologic conditions in adults, but in children these infections are considered by most authors to occur exceedingly rarely.

In the typical case of gonorrheal pelvic inflammatory disease in children a history of vaginal discharge, past or present, is usually readily obtainable. There is most frequently a sudden, acute onset of generalized abdominal pain, often accompanied by chill, nausea and vomiting. The temperature rises rapidly, often to 103 or 104 F. in the first twelve hours. Pain is more acute in the lower half of the abdomen. The abdomen is rigid and scaphoid, the abdominal wall moves poorly with respiration and peristaltic sounds are usually absent. There are generalized tenderness and muscle spasm over the entire abdomen, more marked in the lower quadrants bilaterally. Rebound tenderness is exquisite and unreferred. Leukocyte counts are high, from 20,000 to 40,000, with a marked predominance of polymorphonuclears.

Besides these abdominal and systemic manifestations, the examiner will usually discover the presence of a vulvovaginitis, acute or chronic. Typically, there will be a profuse, yellowish, purulent vaginal discharge which shows the presence of gonococci on smear with the Gram stain or on culture. The vulva is intensely reddened, edematous and excoriated, the surfaces stuck together and bathed in the purulent exudate. On rectal examination a sensation of increased heat is imparted to the examining finger, and there is extreme tenderness in both adnexæ, as well as tenderness on manipulation of the cervix, but fluctuation in the cul-de-sac is seldom noted.

Conditions entering into the differential diagnosis most commonly include appendicitis, primary peritonitis (pneumococcal or streptococcal), pyelitis, intussusception, mesenteric adenitis and Meckel's diverticulitis. A vaginal discharge, past or present, particularly if it can be proved to be of gonorrheal origin, is most helpful in arriving at the diagnosis. From the practical standpoint, in the majority of instances one has to decide the origin of the peritonitis, since it is almost always obvious that the patient has peritonitis.

If it can be demonstrated that the infection is of gonorrheal or of pneumococcal origin the treatment is conservative. If, on the other hand, one feels that the process arises from an inflamed appendix the treatment may be surgical intervention. When one is in doubt and cannot rule out appendicitis, it is certainly to the best interests of the patient to explore. With appendicitis the onset is more gradual, the

fever is usually not as high and comes on after the pain, the child looks less toxic, vomiting is not as prominent a feature, there is usually more tendency to localization and no vaginal discharge is present. If the abdomen is opened and salpingitis is discovered instead of appendicitis usually no harm is done, and the sulfathiazole sprinkled about in the peritoneum probably does a great deal of good in bringing about a more rapid and complete resolution of the process.

The prognosis in gonorrheal salpingitis and peritonitis is good. Under the usual treatment the patient is ordinarily clinically cured in from ten days to two weeks.

The treatment is conservative—parenteral administration of fluids, sedation and the usual supportive measures for peritonitis in general. Specifically, one gives sulfathiazole or sulfadiazine in the dose of 1 grain per pound of body weight per day. If the patient's diet is restricted to fluids administered parenterally these drugs may be administered in about the same dose intravenously (as the sodium salt), 1 Gm. dissolved in 20 cc. of distilled water. In addition, one should vigorously treat the associated vulvovaginitis, preferably with vaginal estrogen suppositories, which bring about cornification of the vaginal mucous membrane and make the area more resistant to the gonococci. Usually one estrogen suppository (10,000 international units) is inserted each day for about a week or ten days and then one every two or three days until the patient is clinically cured. The danger of sexual precocity with development of secondary sexual characteristics, even in infants, must be kept in mind if treatment is protracted. Usually 25,000 international units of estrogen is sufficient to overcome the infection.—A.J.D.C.

Diagnosis of hæmorrhage in man.—A few years ago most of us had the idea that collapse from hæmorrhage was characterized by a rising pulse rate and, at a slightly later stage, a low blood pressure. This notion seemed to be fairly based on physiological grounds, in that a failing cardiac output would precipitate compensatory sympathetic vaso-constriction and cardio-acceleration through the sino-aortic reflexes. It came as a surprise, therefore, to realize that rapid bleedings were accompanied by collapse reactions with marked bradycardia, and that these reactions became more frequent with the magnitude of the bleeding. These vasovagal reactions have been analysed by Barcroft and his colleagues who have shown that they are the result of reflex vasodilatation in the musculature of the body. The characteristic symptoms preceding and accompanying this fainting reaction include deep sighing respirations, yawning, feeling of heat and sweating, vomiting, waning consciousness, carpo-pedal spasm, and sometimes convulsions. The differential diagnosis between hæmorrhage and fainting came to be meaningless. At a still later stage after hæmorrhage, when hæmodilution and

anæmia have made their appearance. Sharpey-Schafer has shown that another cardiovascular state occurs: the pulse is rapid and collapsing in type, while the cardiac output is up to double the normal. This state of affairs is commonly seen in patients admitted to hospital after recurrent gastro-intestinal bleeding, and is compatible with considerable reductions of blood volume.

Three types of clinical pictures after hæmorrhage have thus been established: (1) the classical picture with rapid pulse and low blood pressure; (2) vasovagal reaction; and (3) the late hyper-kinetic phase, when post hæmorrhagic anæmia has developed. The vaso-vagal reflex and the high cardiac output with low blood volume cut right across current trends of thought on circulatory regulation based on animal work. Shenkin and his co-workers have made a further contribution to the problem. In the early phase of hæmorrhage they subdivided the phenomena into the following three stages: (1) symptoms-free at rest with pulse and blood pressure within normal limits, but undue acceleration of pulse on standing up; (2) intolerance of the upright position, which precipitates vasovagal syncope; (3) syncope attacks with brady-cardia even though recumbent. They also observed that when all the lost blood was retransfused 1½ to 2 hours after bleeding the blood pressure was raised 10 or 20 m.m.

high above the value before bleeding. More work is required. —*B.M.J.*

Abnormal carbohydrate metabolism in burns.—In 35 consecutive burned patients, a high incidence of hyperglycæmia, lactacidemia and a moderate reduction in the carbon dioxide combining power of the plasma were found. There is a high degree of correlation between these abnormalities of carbohydrate metabolism and the severity of the burn. The glucose-tolerance tests that were made indicate that in some severely burned patients with hyperglycæmia there remains a considerable ability to metabolize added glucose. There was no evidence of liver damage in these patients as a result of the burn injury. In the few cases in which liver damage was found, it was present before the injury, being for the most part an alcoholic cirrhosis. The abnormalities in carbohydrate metabolism that have been presented are not inconsistent with the presence of an increased glycogenolysis, together with a possible gluconeogenesis from protein. It is suggested that additional glucose be given early to burned patients. Taylor, F.H.L.; Levenson, S.M.; and Adams, M.A.: *Abnormal carbohydrate metabolism in human thermal burns; preliminary observations.* *New England J. Med.* 231: 437-445, September 28, 1944. *U.S.Na.Med.B.*

Adharkar Report Examined

The Sub-Committee of the Indian Medical Association consisting of Col. Amichand, Drs. Chaman Lal Mehta and S.C. Sen, met at the Delhi Medical Association House, Delhi, on 7-7-1945 to consider the Adharkar Report. The Committee had the advantage of the presence of the President, Dr. Jivaraj N. Mehta, and his advice and guidance. Capt. Shivapuri was unfortunately absent during the discussion, but has subsequently approved of the report and has signed it.

After consideration of the notes and various reports and discussion of various points, the Sub-Committee submitted the following report for the consideration of the Working Committee and the Central Council of the Association:

1. The Indian Medical Association is of the opinion that nothing short of a scheme on the lines of the Beveridge Plan will meet the requirements of the people of India—as has been emphasised on various occasions from the platform of the Indian Medical Association and in the columns of its Journal.

2. The unified scheme of social security to cover Health Insurance, Maternity Benefit and Employment Injury, as circulated under SSI (I) of 21-5-45 by the Secretary, Labour Dept., Government of India, is an improvement on the scheme originally proposed in the report submitted by Prof. Adharkar who was presumably handicapped

by the terms of reference and the limitations placed on him. But it has still ignored the fundamental factors necessary for the prevention of disease and achievement of positive health, on which must depend the success of any scheme for the relief of sickness.

3. The Indian Medical Association is glad to find that Messrs. Stack and Rao, the experts from the International Labour Office—are in agreement with the major part of its views on the subject as submitted in the reply to the questionnaire and its Memorandum and in the editorial comment on the Adharkar Report as published in its Journal in April 1945. It is obvious that the notes submitted by these two experts have largely influenced the Government of India in modifying the Adharkar scheme. We have a feeling that these experts would perhaps have supported our points of view entirely—had there been an opportunity for them and representatives of the Indian Medical Association to meet and discuss the matter together. As such, in this new scheme, there are still some shortcomings which are of fundamental importance to which the attention of the Central and Provincial Governments and other parties concerned is drawn in the following paragraphs:

4. Whereas provision has been made for Health Insurance, Maternity Benefit and

Employment Injury, the fundamental assumptions necessary for the success of the scheme, viz.,

(a) early adoption of unemployment insurance and creation of new employments;

(b) establishment of old age pension;

(c) adoption of premedical measures, e.g., regulation of wages, enforcement of factory laws, good housing, nutrition, education, etc.; and

(d) a national health drive:

have been completely left out of the picture. Unless these are taken up results will not be achieved to the desired extent.

5. *Medical Care*:—(a) The dependants of the insured workers have been left out of the scheme for the present. We suggest that they should be included in the scheme from the start. If the Central and Provincial Governments or the employer are unwilling to pay for their medical care, the necessary amounts may be levied from the workers for this purpose—the amount varying with the number of dependants.

(b) Provision should be made for proper institutional treatment for diseases like tuberculosis, leprosy and venereal diseases, etc. If necessary, the Central and Provincial Governments should make extra contribution for the purpose. This is absolutely necessary for the prevention of spread of such diseases and in the interest of the community and the country.

(c) Medical care—according to the latest Government proposals on Health Insurance, will be provided by Provincial Health authorities. We hope that the original idea of Prof. Adharkar, regarding whole-time service personnel to which this Association strongly objected, will be given up, if it has not been already dropped; and that the panel system (as prevalent in the U.K., with further improvements as suggested by the British Medical Association) recommended by the Indian Medical Association and the Trades' Union Congress will be in force. We feel very strongly that in the

interest of both the insured and the medical profession—the basic principle of free choice between doctor and patient, and personnel (as against official) relationship should be maintained. As we have already pointed out that it is to the best interest not only of the workers, but the State as well, to foster the idea and growth of the family physician and make it possible that the treatment and care of the entire family as one unit is undertaken by one Doctor of their choice. This will help in promoting goodwill, trust and co-operation which must be available to the necessary extent if positive health has to be achieved and all preventive measures which are likely to be adopted in the near future are to be successful.

Similarly, for laboratory and specialist services, local consultants and specialists may be employed, either on a per capita or part time salary basis.

6. *Medical Administration*:—(a) The representation suggested for the medical profession in the Central, Regional and Local Boards is only one in each. This is extremely inadequate. This number should be increased to at least 3 in each Board and these members should be representatives of the Indian Medical Association.

(b) There should be two separate departments under the Minister of Health in each province: (1) to deal with medical benefit, and (2) to deal with the subject of cash benefit of all kinds.

(c) The Indian Medical Association further recommends to the authorities that the question of remuneration and terms of the panel service, etc., should be determined in consultation with the representatives of the Indian Medical Association.

It will be noticed that in this report we have only dealt with general principles and have not gone into details. We hope that the Central Government will give the Indian Medical Association an opportunity for discussion before the scheme is finally prepared.

Book Reviews

After Treatment.—By H. J. B. ATKINS, D.M., M. Ch., (OXON), F.R.C.S., (ENG.). Asst. Surgeon to Guy's Hospital, 2nd Edition, 1944. Pp. 311 illustrated (Blackwell Scientific Publication Ltd., Oxford. Price: 18 sh. net.

It is being appreciated more and more that when the patients leave the theatre the surgeon's job is but half done and that the convalescence, subsequent health, or even the chances of survival may be prejudiced by the amount of after-treatment that he will be given. In the last 10 years these advances in after-treatment have been rapid. The demand on teaching and private practice may sometimes make it impossible for the surgeon to supervise the after-treatment

of all cases personally. It is therefore very opportune that a book giving the recognised methods of treatment in the post-operative stage is published. Dr. Atkins who is one of the best among the younger surgeons has done a great service in not only stressing upon the importance of after-treatment, but in standardising and regularising this most important aspect of surgery.

In the present edition, new chapters have been added on the post-operative treatment of children and on rehabilitation. There are individual sections on post-operative coronary thrombosis and the management of diabetic patient in the post-operative period. Chapters on Genito-Urinary Surgery and that on Head Injuries have been brought

up-to-date. The general get-up of the book and the illustrations are excellent. We recommend the book whole-heartedly.

The Diabetic Life.—By R. D. LAWRENCE, M.A., M.D., F.R.C.P. (LOND.). Thirteenth Edition with War-time Supplement. Pages 228 with 18 illustrations: J. & A. Churchill Ltd., 104, Gloucester Place, Portman Sq., London.

Lawrence's book is a well-known one, and has been very popular with patients and practitioners alike. The present edition is

a revised one and the author's ambition to make it a practical guide in the treatment of diabetes has been, in our opinion, achieved in a remarkable degree. The book deals with a comparison of normal and diabetic metabolism; the causation and pathology of diabetes and the discovery of insulin; diagnosis and blood sugar tests; the principles of treatment by diet, and insulin; hypoglycaemia and its treatment; and coma and its treatment. A special chapter on war-time supplement is very useful. It is a concise practical manual for practitioners and patients.

Preparations and Inventions

Dental Cones.—These specially designed cones containing Sulphanilamide ($\frac{1}{4}$ gr.) and Sulphathiazole ($\frac{1}{4}$ gr.) are for topical Sulphonamide therapy in the prevention and treatment of infections following extraction. Other indications are dentitis, folliculitis of the wisdom tooth, fractures and osteomyelitis. Literature on request to: *May and Baker*.

Neo-Halarsine.—This trivalent arsenical is a crystalline substance of definite and constant composition providing uniform therapeutic and physiological activity. *Neo-Halarsine* is used by intravenous injection in the treatment of syphilis and other spirochetal or spirillal infections. *Neo-Halarsine* gives rise to fewer reactions than neoars-

phenamine. Supplied in ampoules of 0.045 gm., 0.06 gm., 0.09 gm. and in boxes of 10 ampoules. Literature on request to: *May and Baker*.

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A Correction

The last two lines of Chapter XX. (XII), 3. *Oblique occipito anterior position* "L. O. A" (m). "Indian Village Obstetric Emergencies" in this issue should read as follows: "the flat medial surface of the handle will face the mother's right buttock instead of her right groin" and not as published.

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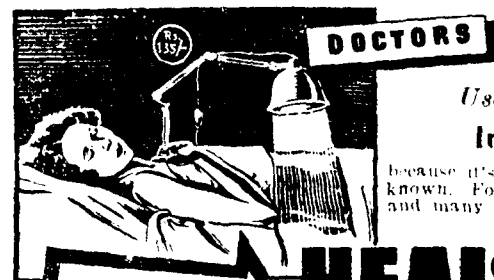
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For the effective treatment of Whooping cough,
Acute and Chronic Bronchitis.

COMPOSITION:—

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Indian Nightshade	...	3 "
Gainari	...	3 "
Ephedra Vulgaris	...	3 "
Syrup Ajowan	...	3 mins.
Syrup Vasaka	...	add 1 dr.

ELX. GYNÆ CO.

For the effective Treatment of Menorrhagia, certain forms of
Dysmenorrhœa and Amenorrhœa.

COMPOSITION:—

Ext. Lodh. Liq.	...	10 mins.
" Mootha	...	6 "
" Ashoka	...	15 "
" Beriberria	...	5 "
" Viburnum	...	6 "
Nigella Sativa	...	4 grs.
Woodfordia	...	4 "
Water Lilly	...	4 "
Syrup Calcii	...	add 1 dr.

And Standardized Liquid Extracts of selected Indigeneous Drugs.

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Of the several official preparations for diphtheria prophylaxis, the alum precipitated toxoid is in general use. Immunisation of infant and young children is usually undertaken between the ages of 1 and 5 years, and in such subjects Diphtheria A.P.T. is practically reaction-free.



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T.A.B. Suspension Vaccine 'Glaxo' gives good protection with a minimum of local and general reaction. The avoidance of excessive reaction is an important point; patients are then the more willing to submit to this simple prophylactic measure.



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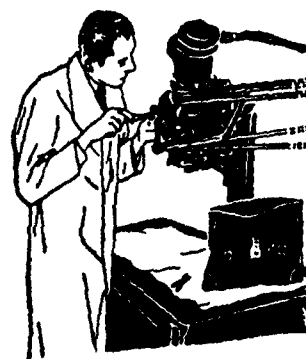
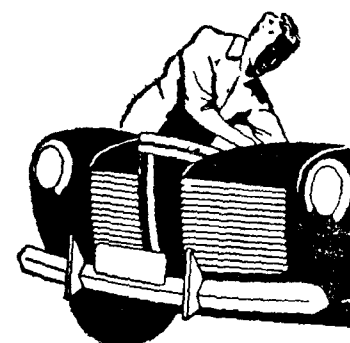
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COMPOSITION: Each fluid ounce contains approximately 12 grains iron and 1/3 grain Copper and 1/3 grain Manganese.

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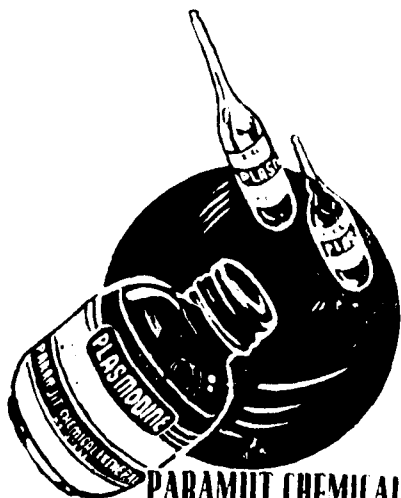
an officer has obtained his basic medical qualifications before or after 1st January 1940), thereafter one month's pay for each completed year of service. Disability, Family & Widow's Pensions and Children's Educational allowances as laid down for the Indian Medical Service.

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