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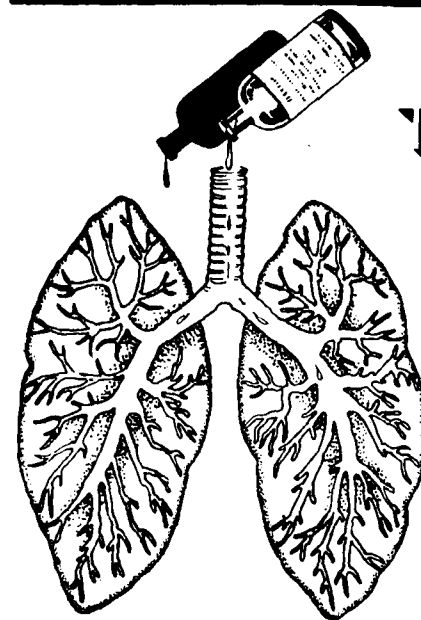
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ADDRESSES AND ARTICLES

Chemotherapy of Malaria*

- Dr. G. V. Joglekar, F. R. C. S., D. L. O.,
Superintendent of Dispensaries and
Deputy Sanitary Commissioner, Ujjain

(2)

Anti-Malarial Remedies

PREPARATIONS OF CINCHONA

These may be grouped under 4 heads:—

- (a) Cinchona mixtures, cinchona febrifuge and totaquina.
- (b) Individual alkaloids: quinidine, cinchonine and cinchonidine.
- (c) Cinchona derivatives: tebetrin, malarcan and C77.
- (d) Miscellaneous remedies containing cinchona alkaloids.

Cinchona mixture:—Quinine, the first alkaloid to be isolated from cinchona bark, was widely used by medical men because of its pharmaceutical advantage over the crude bark. Cinchona trees are now grown only of those varieties which yield the highest percentage of quinine and less and less of other alkaloids. At present, the industry is mainly organised for the production of quinine. When quinidine, cinchonine and cinchonidine were isolated, the question of their curative value came to the forefront. A commission appointed by the Government of India to investigate the question found that quinine and quinidine were equally active and that cinchonine and cinchonidine though less effective were still of definite use. On this report, cinchona plantations were commenced in India and a product containing all the alkaloids of the bark was prepared for local use. This preparation was called cinchona febrifuge.

Cinchona febrifuge prepared from red bark has a high content of effective alkaloids. But red bark yielding less quinine has been replaced by yellow bark yielding more quinine but less quantity of other alkaloids.

As cinchona febrifuge had no definite composition, the Malaria Commission of the League of Nations recommended the manufacture of a cinchona mixture, standardised to contain not less than 70% of crystallisable alkaloids of which at least one-fifth was quinine. This preparation was to be

* Continued from page 291, November, 1940, issue of the *Journal*. The third and final article in this series will be on "Practical suggestions for treatment of Malaria."

called totaquina and in 1932 this preparation was included in the British Pharmacopeia.

Totaquina can be produced in sufficient quantities by fresh cinchona plantations, but whether it will be produced in adequate quantity will depend on the comparative manufacturing cost of totaquina and the various synthetic preparations appearing on the market.

Cinchona febrifuge which is a mixture of the alkaloids from cinchona bark is almost as good as quinine for the routine treatment of average cases of acute malaria.

The recommended dosage of cinchona febrifuge is 20 to 30 grains a day and is best administered in capsules or tablets or plain powder. Knowles recommends the following mixture:—

Cinchona febrifuge	10 grs.
acid citric	20 grs.
mag. sulph	20 grs.
syrup }	equal parts to 1 ounce.
water }	

Fletcher found that 20 grains a day was sufficient for Asiatic adults of an average body weight of a little over 100 lbs.

Totaquina.—Totaquina containing 70% of crystallisable alkaloids of which not less than 1/5 is quinine can be prepared in 2 ways.

Type I is the total product prepared from red bark, type II is prepared from yellow bark residues with added quinine.

Hicks working on prisoners in Lahore jail found no difference between totaquina and quinine either in toxicity or in their effects on fever and parasites.

Totaquina is best given as powder or tablets and is suitable only for oral administration, as, if given by intramuscular injection, it produces painful indurations. Totaquina is equally effective as quinine but slightly cheaper in cost.

Alkaloids other than quinine.—Quinidine given in doses of 5 grains twice a day will rapidly relieve symptoms of acute malaria but has a depressant action on the heart, hence it is not now used. Cinchonine and cinchonidine, as isolated remedies, have no place in the treatment of malaria. They are less effective than quinine when given in small doses, although in adequate quantities they will cure malarial infections.

Hydroquinine and hydroquinidine.—Hydroquinine is the only cinchona alkaloid for which definite superiority over quinine is claimed. It is said to be better tolerated than quinine and to possess a greater plasmodicidal action.

A number of compounds have been prepared from hydroquinidine and hydroquinine, of which the following may be briefly mentioned.

Tebetrin:—This is a proprietary remedy containing hydroquinine, acriflavine and bile salts,

prepared by Messrs. Howard and Sons of London and advertised in India. The therapeutic range of action of the drug is more or less the same as quinine, but it is more than twice as expensive as quinine.

Malarcan :—This somewhat resembles tebetrin but contains hydroquinidine instead of hydroquinine. Its action is just the same as quinine although it is much more expensive.

C77—This is an interesting derivative of hydroquinine prepared by Giemsa and has the character of a red dye. The effects on malarial parasites are similar to those of quinine but less marked.

Miscellaneous remedies containing cinchona alkaloids :—Many such drugs may be listed but only a few are mentioned below.

Drugs containing cinchona alkaloids in combination with arsenic are :—

- | | |
|---------------------|-----------------------|
| (a) Quinostovarsol, | (b) Quinine troposan, |
| (c) Esanophele | (d) Bacelli's mixture |

Those containing quinine in combination with a gametocide of the plasmoquine type include :—

- | | |
|------------------------|--------------------------|
| (e) Quino-plasmoquine, | (f) Plasmoquine compound |
| (g) Quino-praequine, | (h) Stovoquine, |

Quino-stovarsol is a mixture of equal parts of quinine and stovarsol. This drug has no advantage over quinine. Quinine troposan is a similar preparation containing 50% of quinine and 40% of troposan which is an isomer of stovarsol. This is inferior to quinine.

Esanophele :—This drug is prepared in pill form, each pill containing

Quinine sulph	½ gr.
Arsenious acid	1/100 gr.
Iron citrate	2/5 gr.
Powdered herbs	2½ gr.

The dose for an adult is said to be six pills a day.

It is possible that Esanophele has valuable tonic properties in chronic malaria, but it is not effective in treating cases of acute malaria.

Bacelli's mixture is a similar preparation containing higher proportion of quinine. Full adult dose of 30 c. c. three times a day has efficient plasmodicidal action.

Quino-plasmoquine and plasmoquine-compound :—Quinoplasmoquine reduces the chances of recurrence in acute *P. Vivax* malaria. Sinton stated that by the use of Quino-plasmoquine treatment in the Indian army, relapsing benign tertian malaria became so rare that the malaria treatment centre at Kasauli, where the intractable relapsing cases were drafted, was closed for lack of patients.

Quino-praequine :—Praequine is said to be similar to, if not identical with, plasmoquine and is manufactured in France. From the formula, the drug appears to be the same as quino-plasmoquine and has the same action.

Stovoquine :—Is a combination of rhodoquine, a compound resembling plasmoquine and of quino-stovarsol. Its utility is indicated by its composition.

SYNTHETIC GAMETOCIDES OF THE PLASMOQUINE TYPE

It is said that it was the post-war shortage of quinine experienced by some countries which necessitated search for synthetic products to replace quinine and as a result of the experiments by Schuleman and his colleagues in the Bayer laboratories, plasmoquine was evolved by introduction of a short chain into the nucleus of the quinine molecule. The discovery of plasmoquine is not only important as being the first synthetic malarial remedy but it proved the possibility of evolving synthetic drugs effective in chemotherapy of malaria. The discovery of plasmoquine at Bayer's laboratory stimulated research in other countries and Fourneau and his colleagues in France prepared a large series of compounds more or less similar to plasmoquine. Two of these, Rhodoquine, formerly known as Fourneau 710, and praequine are of clinical value and used widely in French colonies.

Rhodoquine is similar to plasmoquine in therapeutic action but is said to be a somewhat weaker schizonticide for *P. vivax* and *P. malariae*.

Praequine is apparently identical with plasmoquine. Russian chemists have prepared a series of amino-quinolines under the name of Plasmocide. The original plasmocide is said to be inferior to plasmoquine, but recent preparations of plasmocide 47 and 48 are said to be promising.

At present there is a tendency to describe malarial remedies in terms which have reference to their particular plasmodicidal range of action and it is no longer considered sufficient to describe drugs in general terms as malarial remedies, without regard to the species or phase of parasite against which their activity is most marked. Plasmoquine was introduced as a general remedy, but it was soon evident that its effect on malarial parasites was not the same as those of quinine. There were gaps in the plasmodicidal range of the drug which were different than those of quinine, as will be evident from the following review of its action as a sporozoiticide or as a schizonticide or as a gametocide.

Action of plasmoquine on sporozoites :—There is no drug known at present which in non-toxic doses destroys sporozoites with certainty. The action of plasmoquine on sporozoites has not been definitely established. It is argued that if the administration of the drug given as a prophylactic is prolonged well into the incubation period it acts not on the sporozoites but on the forms into which the sporozoites have developed.

Action of plasmoquine on schizonts :—It has little effect on *P. falciparum* during the schizogony cycle which means that plasmoquine should never be used alone to treat attacks of subtertian malaria. Its action on *P. vivax* and *P. malariae* during schizogony are similar to those of quinine. It is even possible that the effects of plasmoquine on *P. vivax* is better than that of quinine.

Action of plasmoquine on gametocytes :—If quinine is termed as a polyvalent schizonticide, plasmoquine may be termed a polyvalent gametocide. The action of plasmoquine on the gametocytes of *P. vivax* and *P. malariae* is the same as that of quinine, which is an effective gametocide in benign tertian and quartan malaria; but the effect of plasmoquine on the gametocytes of *P. falciparum*, the familiar crescents, is unique. Not only are crescents destroyed by adequate treatment with plasmoquine, but even minute doses so injure them that they become incapable of infecting mosquitoes.

The use of plasmoquine in acute subtertian malaria :—Plasmoquine has neither any effect on the schizonts of subtertian malaria nor does it prevent the formation of crescents, but it acts on crescents and destroys them in a week's treatment.

The use of plasmoquine in acute benign tertian malaria :—The schizonts of *P. vivax* and *P. malariae* are probably as sensitive to the action of plasmoquine as they are to that of quinine. Plasmoquine is therefore an active remedy for benign tertian and quartan infections.

It seems to be generally accepted that plasmoquine is more effective than quinine against Indian strains of *P. vivax* and that infections produced by these strains are permanently cured more readily by plasmoquine and quinine than by quinine alone, but at the same time, it must be noted that plasmoquine is more toxic than quinine.

Dixon (1933) treated more than two hundred cases of benign tertian malaria among European soldiers and their families in Poona, with plasmoquine combined with quinine with a relapse rate of only 4% as compared with 25% of 250 cases treated with quinine alone.

As stated already, the malaria centre at Kasauli established for treating resistant benign tertian malaria cases from the British army in India has been closed for lack of cases since the introduction of combined quinine-plasmoquine treatment throughout the army.

The use of plasmoquine for gametocyte prophylaxis :—The gametocidal action of plasmoquine has been utilised in the mass treatment of malaria.

Toxicity of plasmoquine :—Plasmoquine is a relatively toxic drug. The two main symptoms of plasmoquine poisoning are cyanosis and abdominal pain. Cyanosis is due to the formation of

methaemoglobin. If the drug is discontinued the symptoms soon pass off. On the contrary if it is continued symptoms like Black Water fever develop. Even at this stage recovery takes place if the drug is discontinued and injections of glucose and adrenalin are given.

The dosage of plasmoquine :—Nowadays doses greater than 0.04 gm. a day are seldom used. When plasmoquine is used as a gametocide after acute subtertian malaria 0.02 grms. daily for 3 to 5 days is usually considered safe and adequate.

The preparations of plasmoquine are :—

Plasmoquine simplex tablets of	0.019 gm.
Plasmoquine simplex " "	0.02 gm.
Plasmoquine simplex solution 1%	1.0 c. c. ampoule
	3.0 c. c. ampoule

Plasmoquine, compound tablets containing 0.01 gr. of plasmoquine and 0.125 gr. of quinine sulphate.

Quino-plasmoquine tablets containing 0.01 gr. of plasmoquine and 0.3 gr. of quinine sulphate.

Quinoplasmoquine solution ampoules of 2.0 c.c.

The clinical indications for the use of some of these are not clear. Tablets of plasmoquine simplex are suitable for gametocyte therapy whether for the after-treatment of subtertian malaria or for continuous gametocyte prophylaxis. Solutions of plasmoquine for injection are unnecessary, as plasmoquine tablets are small and easy to swallow. Plasmoquine therapy is never an urgent therapy.

Tablets of quinoplasmoquine are suitable for combined treatment in acute benign tertian malaria, but plasmoquine compound contains too little quinine for this purpose.

Ampoules of quinoplasmoquine for injection are probably of value only to those physicians who prefer this mode of therapy regardless of the clinical indications for it.

In short, plasmoquine was the first synthetic quinoline to be produced with an effective action on malarial parasites. Like quinine, plasmoquine is a methoxy-quinoline derivative. Like all other malarial remedies plasmoquine has a selective action on different forms of malarial parasites. Its range of action is different from that of quinine, for whereas quinine has a powerful effect on the ring forms of *P. falciparum*, it has little on the gametocytes. Plasmoquine has a marked destructive effect on the gametocytes with practically none on the ring forms.

When given in toxic doses to individuals who have been bitten by infected mosquitoes, plasmoquine has been shown to prevent all evidence of malaria.

Plasmoquine is an effective schizonticide of *P. vivax* and *P. malariae*; benign tertian and quartan infections treated with plasmoquine are probably less prone to recur than those when treated with quinine alone.

To the tropical workers plasmoquine has two important defects: its failure to affect the fever-producing forms of *P. falciparum* and its relative toxicity. Its main virtue lies in its unique action on crescents.

SYNTHETIC SCHIZONTICIDES OF THE ATEBRIN TYPE

As stated just now, plasmoquine has two important drawbacks: it has little effect on the schizonts of *P. falciparum* and is relatively toxic unless given in small doses. The work of Schuleman was therefore continued and after numerous experiments by alterations of structure and position of the side chain around the quinoline nucleus a compound which acted on the asexual forms of all the three species of malarial parasites was discovered by Mutschi and Maus. This compound is known as Atebrin. Atebrin has affinities both with quinine and with plasmoquine. It resembles plasmoquine in possessing the same side-chain though this chain is attached to a different point in the ring system. It resembles quinine in having a similar point of attachment for the secondary grouping. It differs from both in that the quinoline ring which is the basis of quinine and plasmoquine is broadened to the acridine ring.

Two advantages which atebrin possesses over quinine are said to be related to this broadening of the ring system: relative freedom from immediate by-effects and prolonged retention in the body.

Atebrin first appeared in 1931 and imitations have already appeared in France, Russia and India. The French equivalent is quinaquine and is said to be identical with atebrin. Atebrin-like compounds have also been prepared in Moscow under the name Acriquine. Acriquine 5 and Acriquine 8 are atebrin-like compounds with slight differences in the chain system.

Acridin 10 is an acridine compound of Indian origin akin to atebrin in composition and has proved to be as effective as atebrin in treating malaria.

Atebrin is a yellow powder, bitter in taste and moderately soluble in water. The drug is available in two forms in tablets for oral use containing 0.1 gm. and as atebrin musonate (now called atebrin for injection)—an atebrin salt of high solubility. The ordinary atebrin is atebrin bihydrochloride; atebrin-musonate is the dimethyl sulphonate.

In its action on the parasites of human malaria atebrin, generally speaking, has the virtues and defects of quinine. It is an effective schizonticide but a poor gametocide.

The action of atebrin on sporozoites.—The action of atebrin on sporozoites is not clearly defined. But it has a definite protective value in doses which are believed to be safe and prevents the appearance of all signs of malaria in a high proportion of individuals treated. It must be remembered that the action of atebrin in the body

is very prolonged. The effects of a full course given during the incubation period of malaria may persist for a month or more and the preventive action which the drug seems to exhibit may be due not so much to an action on the sporozoites as to an early destructive effect on schizonts before they reach numbers sufficient to cause fever. At what stage the parasite is attacked is not however known.

The action of atebrin on schizonts:—It is not known with certainty how atebrin acts in malaria. Recent experiments suggest that the drug has a direct action on the parasites.

- (a) Atebrin like quinine is a polyvalent schizonticide.
- (b) Against some strains of *P. falciparum*, atebrin has a more powerful effect than quinine.
- (c) (i) Atebrin has a slower action than quinine in subtertian infections.
- (ii) Atebrin has a more rapid action than quinine in benign subtertian infections.
- (d) The schizonticidal action of oral atebrin though slower in coming into effect against some strains of *P. falciparum* is probably more prolonged than that of oral quinine in all forms of malaria.

The action of atebrin on gametocytes:—Atebrin is not a general gametocide. It does not destroy the gametocytes of *P. falciparum* and its effect on the gametocytes of *P. vivax* and *P. malariae* are similar to those of quinine and as a gametocide in benign tertian and quartan malaria the drug appears to have no particular advantage.

Relapse rate after atebrin treatment:—It appears that atebrin has a higher sterilisation value. The extraordinarily slow excretion of atebrin may possibly explain this tendency. Quinine is excreted rapidly, it is unusual to find quinine in the urine for more than 48 hours after treatment has stopped. Atebrin is excreted extremely slowly, in one case it was present in the urine on the 41st day after the last dose. It is possible that the drug remaining in the body during the latency period may act as a clinical prophylactic and tides over the critical period when recurrence is more likely to occur.

Dosage and methods of administration of atebrin:—The usual dosage of atebrin is 0.3 gm. a day, three tablets of 0.1 gm. taken by mouth. Duncan found that a single daily dose of 0.3 gm. was equally effective.

A soluble atebrin is now available, atebrin dimethyl sulphonate, a drug which came into prominence in 1935 during the Ceylon malaria epidemic.

The pharmacology of atebrin:—When given by the mouth atebrin is absorbed by the small intestine and passed into the blood stream whence it is slowly excreted in bile and urine in an unchanged condition. Excretion begins within a few hours of administration and rises to a maximum in about 24 hours. It is stated that only 1/7th of

the atebrin administered can be recovered from the excreta, the fate of the remaining 6/7th being uncertain. Most patients excrete the drug a fortnight after the cessation of treatment.

The recognition of atebrin in the urine is not difficult. The ultraviolet light test is extremely sensitive and reveals the presence of atebrin in a dilution approaching one part in two and a half millions.

Toxicity of atebrin:—The drug seems to be relatively harmless for most individuals when given orally in the usual doses of 0.3 gm a day.

Atebrin treatment is free from any side effects like those produced by quinine treatment. Given in curative doses the drug causes little or no interference with working efficiency. Very large doses have sometimes been tolerated without obvious harm. A child of 9 months is said to have received by mistake nearly 8.0 gm. of atebrin within 13 days and to have been none the worse except for vomiting and diarrhoea. A medical man accidentally gave ten times the usual dose with no ill-effect other than abdominal pain. A few individuals complain of a little headache, mental depression or transient abdominal pain. Some individuals, probably 2 or 3%, develop a yellow staining of the skin and eyes. This is said to be a direct staining effect of the drug on the tissues and is in no way related to jaundice, and does not indicate that the drug has a damaging effect on the liver.

Minor symptoms attributed to prophylactic atebrin are irritation of the nasal mucous membrane and of the skin and sometimes a dry irritable scaly thickening of the skin of the palms of the hands and the soles of the feet.

More important however are the occasional mental complications following oral administration of atebrin. Restlessness and excitement develop during or shortly after treatment but as a rule subside within a few days. The possibility that the mental excitement is a photosensitisation phenomenon has not been discredited and until disproved it is perhaps well to advise against undue exposure to the sun during treatment and for a fortnight afterwards particularly if the skin is atebrin stained.

The toxicity of combined atebrin-plasmoquine: Atebrin has been used in conjunction with plasmoquine in the same way as quinine plasmoquine treatment. Many workers believe that the two drugs should not be used simultaneously and that an interval of at least three days should be allowed where successive courses of atebrin and plasmoquine are indicated. Severe abdominal pain, diarrhoea, bilious vomiting, cyanosis, palpitation, lowered blood pressure, temporary facial paresis, and rarely fatalities have been reported.

Its action in malaria and its therapeutic range is similar to atebrin. The drug given by intra-

muscular injection has a more powerful initial action on fever and parasites than has quinine given by mouth.

The sterilisation value of two injections is low, some form of supplementary treatment is therefore desirable.

Toxic symptoms sometimes follow intramuscular injections of 0.375 gm.; administration to debilitated persons and to small children is probably inadvisable.

• DRUGS OF LITTLE PROVED VALUE IN MALARIA

The number and variety of drugs recommended from time to time as malarial remedies is enormous. The following are examples of drugs which have not stood the test of experience.

Smalarina:—This preparation is said to contain mercury, antimony and iodine in organic combination but has proved to be worthless.

Aseplene:—A proprietary preparation manufactured in London is found to be of little or no value.

Radiolpha:—This contains methylene blue, small quantity of quinine and a mildly radio active substance, but is valueless.

Pericrina 303:—A mixture of egg albumen and tryptaflavine is of little value.

Diplasmin:—A synthetic compound of the plasmoquine type has no effective action on parasites or symptoms.

Malarina:—A proprietary remedy containing cinchona alkaloids and arsenic; supplied as beautiful blue pills; and is said to be practically useless. This should not be confused with a standard cinchona product of the same name prepared by the Director of Agriculture, Madras.

Prontosil is reported to have a plasmodicidal action on *P. vivax* and *P. falciparum*, but is however much less active than quinine.

Paludex:—A proprietary remedy containing sodic disulphonate of cuprous oxyquinolein and chlorohydrate of quinine is decidedly inferior to quinine.

Homaline is a vegetable product with effect decidedly much inferior to quinine.

Mercurochrome, tartar, emetic, anti-mosan, Stibenyl, cadmium, carbolic acid, eusol, methylene blue have all been advocated at some time or other as remedies for malaria but later condemned on further experience.

Recently *Certuna A. tegrantate*, Malarin, Malario, and Sulphanimide have been put forward as malarial remedies. The last three have been proved as inferior to quinine. Certuna has been found inferior to plasmoquine in its action.

Renal Rickets

(Synonyms :—Renal Dwarfing ; Renal Infantilism)

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The clinical entity of renal rickets is characterised by stunting of growth, progressive knock-knee and signs of renal fibrosis.

Etiology :—Previous rickets, or parenchymatous nephritis, or syphilis have no bearing on this disease. Both sexes are equally affected. "It is possible that children who suffer with chronic interstitial nephritis, complicated by bone-deformities, have been born with hypoplastic or congenitally diseased kidneys." (Norman B. Capon)

Pathogenesis : Renal changes :—Post mortem, the kidneys may resemble the granular atrophic type with or without cysts or may be very small and scarred.



A. G. : 6 years—Renal Dwarf
(Photo by the author.)

Cardio-vascular changes :—These may be present as with the primary small white kidney or entirely absent. Karelitz and others have recorded occurrence of calcareous deposits in kidneys, arteries, dura mater, and elsewhere.

Ductless glands :—The parathyroids have been found enlarged in a few rare cases with metastatic calcification.

Chemistry of blood :—There is a raised blood urea, non-protein nitrogen, creatinine and uric acid ; lowered alkali reserve ; and the urea concentration is much impaired. Parsons has shown marked lipæmia and retention of phosphates in the blood, because the kidneys fail in their adequate

excretion of phosphates. The inorganic phosphates of serum rise to 10 to 14 mgms per 100 c. c. while the normal is 4 to 6 mgms per 100 c. c. The serum calcium may be lower or higher than normal but is



X-Rays Wrist : Note the lack of supporting bone on one side of the metaphysis and consequent collapse of the bone end.

generally unaffected. Parsons has attributed the failure of normal ossification to the disturbance of Ca : P ratio that is produced in this condition.

Bone changes :—The bone changes generally appear between eight and twelve years. Dwarfing is often overt before the appearance of the rachitic changes.



X-Rays Ankle : The changes are typical of Renal Rickets

The radiographic appearances of the bones have aroused much interest. Two forms have been recorded by Parsons and Teall. "(1) The characteristic woolly or honeycomb type in which osteoporosis occurs with thickening and fluffiness of the trabeculae. The diaphysis is straight, but at the end of the bone is a long metaphysis. It is in

the metaphysis that deformities arise. It shows irregular ossification with a stippled, woolly appearance, and although it is longer than the metaphysis seen in rickets, it is not so splayed out. In this metaphysis the bone appears to be eaten away under the periosteum. Some observers consider that the presence of transverse translucent areas (Umbauzonen) in the shafts of long bones is very significant. (2) The rachitic type, in which the trabeculae appear to be coarser than normal with a typical rachitic metaphysis. Radiographically the appearance is indistinguishable from true rickets ; improvement may be noted during periods when the function of the kidneys is more normal."

"The X-ray changes are best seen in the knees, wrists and ankles ; the lesions are not distributed symmetrically. Sometimes the skull shows a woolly stippled appearance, with some thickening of the bone not unlike the changes seen in Paget's disease."

"Extreme deformities near the ends of long bones seem to be due in most cases to a sideward displacement in the region of the metaphysis, resulting from softening of this part of the bone."



X-Rays Skull : The presence of stippling and the tendency to disappearance of the inner and outer tables of cranial bones are seen.

It is probable that epiphyseal separation sometimes occurs, and even actual fractures of bone."

Symptoms :—Parsons and Wyllie consider the condition congenital in origin. The patient is usually small in size from birth and deficient growth manifests skeletally at about 6 years of age. Thirst and polyuria may appear early.

The urine may be large in quantity, low in specific gravity and with a few hyaline casts. Albumin is generally about 1 in 1000 and may even be absent.

Cardiac hypertrophy with thickened arteries, high blood pressure, and retinitis may be present. The unusual absence of the above manifestations

is due to dilatation and hypertrophy of the urinary tract. (Ellis)

The child is thin, retarded in growth with occasional sexual infantilism. Intelligence is generally normal. Rickets need not precede the skeletal deformities.

Tetany is commonly present, but the acidosis tends to keep the ionised calcium content at normal and avert tetany.

Renal rickets is manifested mostly at the wrists, knees, ankles and costo-chondral junctions. Knock knee is common in the second decade.

Prognosis :—Prognosis is generally written down as 'hopeless'. Recurrent uraemic attacks, one of them carrying away the child generally in the second decade, are the rule. Irradiation and heavy doses of vitamin D only hasten the disease. Knock knee, which is progressive, is dealt with by comfortable orthopaedic appliances.

Differential diagnosis :—Renal rickets is easily diagnosed from diabetes insipidus, syphilis, and osteomyelites which might lead to confusion.

Treatment :—"The treatment is very unsatisfactory and resolves itself largely into the treatment of chronic uraemia. On general principles the diet should be relatively low in protein ; some observers believe that a salt-free diet is beneficial. Antirachitic treatment by actinotherapy appears to be inadvisable except in the relatively rare cases which show a low phosphate content of the blood ; indeed, death has occurred as a result of this treatment."—(Parsons & Barling.)

When actinotherapy is harmful, a tropical climate as prevails in India must also be conducive to early death of cases of renal rickets.

"Two patients with renal rickets have been treated with sufficient alkali to restore the alkali reserve to within normal limits, and at the same time with large doses of vitamins D and A. The general condition improved ; they grew in height and gained weight, the state of the kidney was slightly improved ; the anaemia was little altered while the condition of the bones was greatly improved." (Graham and Oakley.)

An illustrative case is described below :

A. G. aged 6 years. Female, Hindu, Brahmin.

Complaint : Inability to walk ; bending of bones ; weight stationary during the last three years.

Previous history : Mother's pregnancy and labour normal, Birth premature by one month. Dentition started after 1st year. Early in 1937, the child showed flat feet and was unable to walk without support. Vaccinated in November 1937, and thereafter the child had prolonged fever.

The child was getting Haliverol (P. D. & Co) from the 6th month and Calcinol (a calcium preparation) after 2½ years, both on medical advice. Dentition was slow and therefore injections of a calcium preparation were given with good results.

In June 1938 the child had fever and diarrhoea. In November 1938 an orthopaedic specialist was consulted and he suggested rectification of the deformities under chloroform, but the plan was

abandoned on discovering albuminuria. A plaster cast was used for a long time and later light orthopaedic appliances for both lower limbs.

In February 1940 the parents tried ayurvedic treatment with no benefit.

Family history: Parents are strong and healthy. The patient has a sister 4 years old and a brother 2 years old, both healthy.

Clinical: A pale shallow-complexioned child with a rachitic skull and multiple bony deformities. Thirst and polyuria present. Memory, intelligence and sleep not disturbed. Height 29". Weight 22 lbs.

Investigations: Abdomen: Liver and spleen not enlarged. No masses in the abdomen. No tenderness or palpable enlargement of the kidneys.

Respiratory system: Nothing abnormal.

Cardiovascular system: There is a soft systolic murmur heard best over the pulmonary area (functional). The blood pressure could not be taken. Otherwise normal.

Nervous system: Normal. The retinae could not be examined.

The blood of both the parents has been repeatedly found negative for Wassermann and Kahn tests.

Urine of the child: Specific gravity slightly greater than 1000. Reaction acid. No sugar. Albumin present (f). No casts.

Blood urea 74.5 mgms per cent. Serum phosphates 5.3 mgms per cent. Serum calcium 8.2 mgms per cent.

Blood (4-10-1940):

R. B. C. 2.9 millions. Haemoglobin 52 per cent. Colour Index 0.9. W. B. C. Total 11,400 per cmm. Differential count: Polymorphs 59 per cent. Lymphocytes 38.5 per cent. Monocytes 5.5 per cent. Eosinophiles 20 per cent. Mast cells 0 per cent.

Blood (8-11-1940):

R. B. C. 1.9 millions. Haemoglobin 35 per cent. Colour Index 0.9. W. B. C. total 7,500 per c. mm. Differential count: Polymorphs 68.5 per cent. Lymphocytes 24.5 per cent. Monocytes 5 per cent. Eosinophiles 2 per cent. Mast cells 0 per cent.

Radiological study of the bones:

The skull shows the presence of stippling and the tendency to disappearance of the inner and outer tables of cranial bones.

The wrist: The woolly type of changes may be seen here. The lack of supporting bone on the one side of the metaphysis and consequent collapse of the bone are noteworthy. Four ossific centres are seen in the carpus, while the age of the child is six years.

The ankle: The changes at the lower end of the tibia are also well-marked.

Treatment: Citrocarbonate (Upjohn) one dram thrice a day and Haliverol (P. D. & Co) 5 minims thrice a day, have been advised. The first serves to restore the alkaline reserve of the blood and the second supplies large doses of vitamins D & A. The rest is as for renal fibrosis.

I am greatly indebted to Dr. G. R. Dinker Rau M. D., First Physician, and Superintendent, Stanley Hospital, Madras, for the help and guidance rendered to me in the preparation of this paper.

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Sulphonamide in Gonococcal Infection

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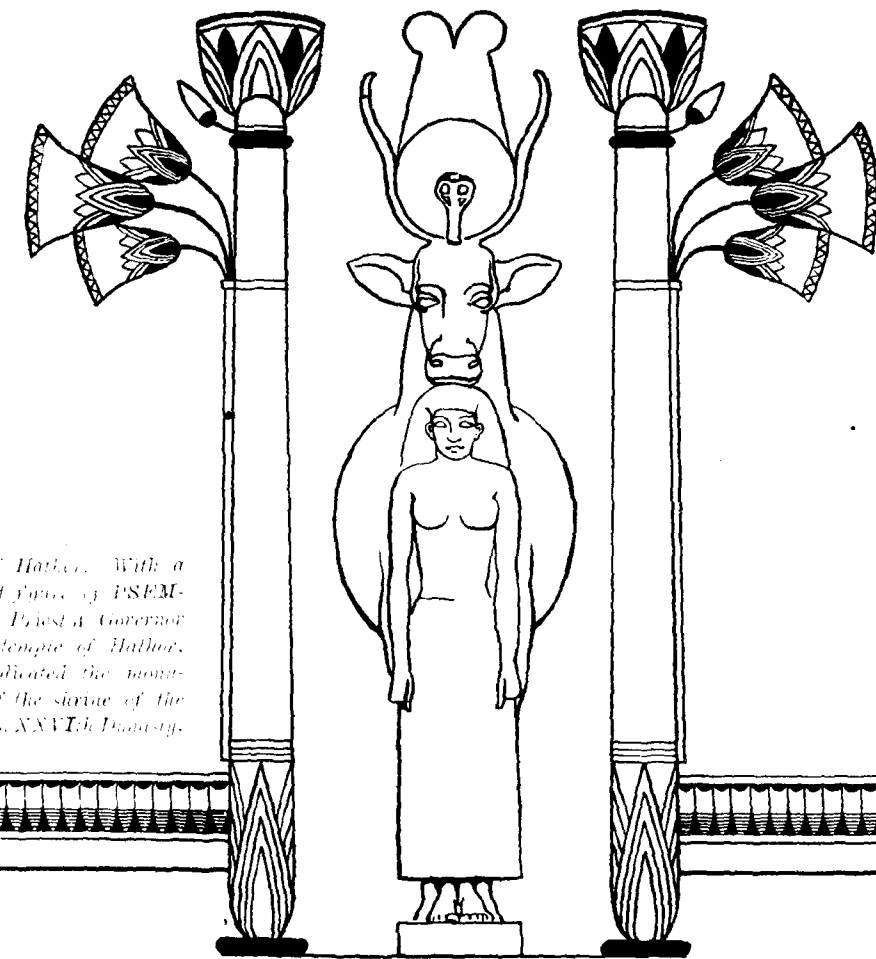
The value of the treatment of gonococcal diseases with sulphonamide compounds is now conceded by numerous authorities. Large numbers of both male and female cases have been subjected to this method of treatment and the numerous papers which continue to appear in the international press on this topic are witness to the interest of the medical profession in the new type of treatment. To the general practitioners (particularly in this country) it is no doubt a boon in view of the fact that a prolonged course of treatment can be avoided and in the majority of cases the acute symptoms can be controlled within a short time and thus a relief is given to the patient. It is of course still doubtful as to how many cases, although clinically cured with such a short course of treatment, are actually free from infection. To my belief this question cannot be solved until there is active co-operation between the clinician and the patient. As a matter of fact most of the cases once relieved of their troublesome symptoms fail to report to the clinician for a complete course. The small percentage of cases which undergo a full course of treatment seldom appear to subject themselves for any test of cure. To revert to the main topic, there are good reasons to believe that sulphonamide therapy is the most favourite remedy (at least for the time being) a general practitioner has at his disposal.

Before I lay down my clinical experiences on the treatment of a few female cases of gonorrhoea with a recently introduced sulphonamide compound marketed under the trade name U. S. T., I would like to say a few words on two questions intimately connected with this therapy.

Firstly, what is the proper time to begin Sulphonamide treatment?

There are two principal schools of thought. The first is opposed to commencement of treatment in early and recent cases and recommends withholding of the sulphonamide compound until the infection is at least 2 weeks old, with a view to allowing immunity to develop uninfluenced by any chemotherapeutic drug. In fact, this school recommends a preliminary specific vaccine therapy in recent cases before initiating the treatment.

The second school is not in favour of withholding the specific treatment for so long a time, particularly in view of the quick spread of the disease and possible complications. As a compromise between the two principal schools there also exists a third school which advocates commencement of the treatment in every case according to its individual merits and recommends specific vaccines at the end of the course or during the interval period of two courses if the first one is a



Cow of Hathor. With a Portrait of a Priestess, THEK, Priestess of the temple of Hathor, who dedicated the monument of the statue of the Goddess, XXVth Dynasty.

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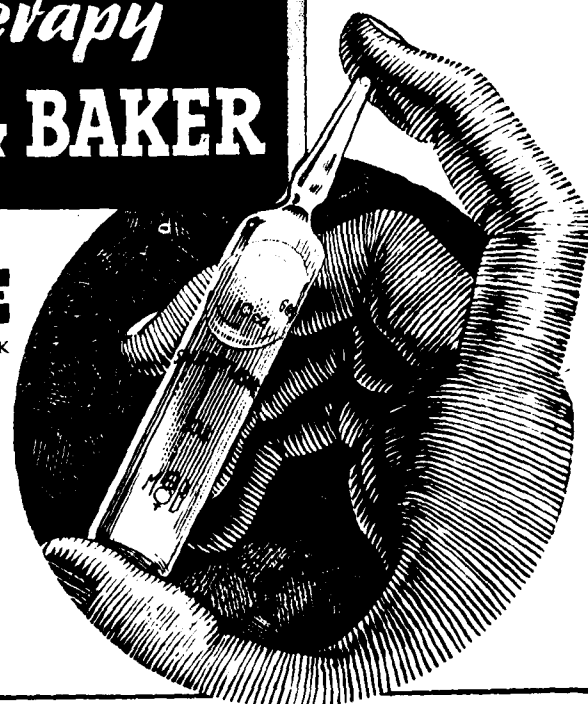
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failure. Personally, I am a follower of the last school. Irrespective of the results of a full sulphonamide course, I always follow it up with a course of specific vaccine in small doses (say 500 mill. to start with) up to three or four injections, covering a period of about a week. By this method I have often found that the slight discharge which sometimes persists after a fairly big amount of sulphonamide clears up. Apart from this, another advantage offered by this method is that those cases which are clinically cured with sulphonamide give the practitioner the satisfaction of a possible eradication of a hidden focus of infection.

Secondly, about toxicity.—There is a considerable misapprehension on this question. Some take up this therapy too lightly, while others are over-cautious. With regard to the first, it has been found that the fundamental principles of sulphonamide therapy are not followed and the results are sometimes alarming. Regarding the second, to avoid any toxic effect, the sulphonamide compound is administered in very low doses and the results are disappointing.

It is needless therefore to add that we will have to be cautious along with the administration of an adequate dose. It is of course true that in spite of all precautions there are some cases extremely intolerant to sulphonamides. As it is not possible to find out at the outset which case will belong to this group it is perhaps best to prescribe a minimum amount on the first day of the course and to follow up with the usual dose. To avoid patients undertaking treatment themselves they should always receive a single day's dose. Complaints like headache, giddiness, nausea, etc., do not necessitate interruption or withdrawal of the drug (unless of course they are severe) but manifestations like haematuria, agranulocytosis, etc., call for an immediate cessation of treatment. Cyanosis, unless severe should not contra-indicate continuance of the drug.

I will now come to short details of six cases of female gonorrhoea treated with U. S. T.

(1) H. F., 18 years, duration 3 weeks. Fairly thick purulent discharge from the urethra and cervix. U. S. T. 2 tab. B. D. on the first day. From the second to the seventh day she was given 6 tab. a day. Up to the fourth day there was no improvement of the quantity of discharge although irritation during micturition and the discharge got less. At the end of U. S. T. course the discharge was mucoid which cleared up after 3 vaccine injections. This patient complained of giddiness after 42 tablets of U. S. T.

(2) H. F., 22 years, duration 1 month. Thin purulent urethral discharge. Had pains in both the knee joints. A total of 46 tablets was given to this patient with an initial dose of 4 tablets. The joint pains subsided after 28 tablets and the discharge was absent after 42 tablets. A course of 3 vaccine injections were given to complete the treatment.

(3) H. F., 24 years, duration 4 months. Cervical gonorrhoea. Initial dose 4 tab. and subsequently 6 tab. a day. Total 46 tablets. Irrigation daily with Pot. Permang. (1 in 10,000) and

the os externum was daily painted with 5 % Urea Sulphazide solution. Although the discharge thinned out it persisted even after the end of the course. Four vaccine injections were given with no improvement.

(4) M. F., 30 years, duration 2 weeks. Thick urethral discharge. As usual a dose of 46 tablets in all were given. The discharge thinned out after 28 tablets and there was no discharge at the end of the course. Three vaccine injections were given.

(5) H. F., 28 years, duration 6 months. Urethral and cervical discharge. Had pains in the larger joints and adnexal inflammation. A total of 46 U. S. T. tablets and four vaccine injections were given. The urethral discharge was absent but the cervical discharge and adnexal inflammatory condition still persisted. This patient complained of nausea after 34 tablets.

(6) H. F., 22 years, duration 18 years. Fairly thick urethral discharge. The discharge thinned out after 34 tablets. Unfortunately she did not continue further treatment.

It is evident from the above that whatever the result was, none of my cases received more than 46 tablets (23 gm) of U. S. T., as I believe that an increase of this dose to an average adult female will only expose her more to the risk of toxic manifestations than to increase the possibility of cure if this was not achieved with 23 grms. or near about it. The tolerance of U. S. T. seems to be good as only two cases, (one giddiness and the other nausea) complained of minor symptoms of intolerance.

It is of course too early to form any definite opinion from the short experience emerging from those cases but it has given me the impression that U. S. T. has a curative action, the exact value of which can only be assessed by treating a larger number of cases.

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Cardiac Therapy and Digitalis

● T. A. Gopalakrishna Rao, L. M. P.,
Medical Officer, Thondamuthur

Cardiac Therapy is peculiar because a single drug—digitalis—is much more important than all other drugs added together. In the great majority of cases of heart disease there are only two essentials in treatment, namely, REST and the proper use of DIGITALIS.

HISTORY OF DIGITALIS

The history of the drug is interesting as showing the variety of beliefs concerning a drug that can be deducted from clinical observation, when this is uncontrolled by any scientific observations.

Digitalis was originally used as a remedy for tuberculosis, and also as an emetic, but in 1775 Withering showed that it had a powerful diuretic action and also an action on the heart. It was used as a diuretic, but Pereira stated that it acted as a cardiac depressant and recommended it "to reduce the force and velocity of the circulation". After about 1860 it was considered a cardiac tonic, and was believed to raise the blood pressure. During the first half of the 19th century digitalis was also used for treatment of numerous diseases of the central nervous system, including epilepsy, general paralysis of the insane and delirium tremens.

The action of digitalis in curing auricular fibrillation was elucidated by Mackenzie, and in the last twenty years the details of its mode of action have been analysed by means of the electro-cardiograph. Digitalis appears to reduce the cardiac output in normal persons, to cause no alteration in cases with moderate cardiac dilatation, but to increase cardiac output in cases of congestive failure.

INDICATIONS FOR DIGITALIS

Auricular fibrillation is the primary indisputable indication for the exhibition of digitalis. The clinical signs of auricular fibrillation are irregular rapid pulse usually with shortness of breath, dropsy of feet and legs, ascites, enlarged liver, with occasionally frothy rusty expectoration. About 60% of all cases of cardiac failure are due to the onset of auricular fibrillation. Nearly all the cases are either due to mitral disease or myocarditis (from cardiac or arterio sclerotic causes); a small percentage being associated with thyroid disease. Experience with the electro-cardiogram has taught that the pulse need not be irregular or always rapid. The essential feature of fibrillation however is the loss of a dominant rhythm; nor does auri-

cular fibrillation always cause dyspnoea or oedema or signs of pulmonary congestion, though they are all usual before treatment has been instituted. In the presence of auricular fibrillation digitalis should be given in full doses, until the oedema begins to subside or the dyspnoea and pulmonary congestion are relieved. In most cases once fibrillation has set in, it continues until death, so that maintenance dose of digitalis must be instituted. Disability and even death could be postponed many years in this way.

THE SYNDROME OF AURICULAR FLUTTER

Auricle beats 300 times a minute or more. The ventricles, and hence the radial pulse, does not in most cases keep pace with the auricular action but responds to every two or three auricular beats. Thus the pulse rate is usually 150 or more per minute. Occasionally the ventricle responds to every auricular contraction (so called 1 to 1 ratio) and the pulse is then 200 or 300 a minute. The pulse in auricular fibrillation is irregular, and in flutter regular. Auricular flutter is considered to be the first stage in auricular fibrillation; the sequence of physiological changes is flutter, fibrillation and normal rhythm.

High blood pressure is another condition which has been put down as contraindication for digitalis but that the drug does not affect B. P. markedly in any way is the considered opinion of an important school of thought.

Aortic regurgitation was the condition in which older school of thought laid emphasis as a contra indication for the administration of digitalis but now the ban is lightly held. Any way when once congestive cardiac failure has set in, no matter whatever the original lesion, digitalis has a place and is certainly indicated.

SUMMARY

Digitalis is indicated in:—

- (1) auricular fibrillation with a rapid irregular pulse with or without dyspnoea, liver enlargement, and pulmonary congestion.
- (2) auricular flutter,
- (3) loss of cardiac tone as evidenced by breathlessness on exertion or slight oedema or rapid pulse, or attacks of palpitation or any combination of this, and
- (4) during the course of pneumonia and other infections as a prophylactic against cardiac failure (though a controversial point). A great majority of physicians of the first rank follow this wholesome practice of digitalis therapy.

INDICATION OF THE ADMINISTRATION OF DIGITALIS IS DETERMINED MORE BY THE DEGREE OF HEART FAILURE THAN BY ALL OTHER CONSIDERATIONS. (Eggleston)

Contra-indication for digitalis therapy in cardiac condition is heart-block as evidenced by slow pulse and fainting attacks.

CLINICAL NOTES

Delayed Toxic Action of M & B 693 causing Exfoliative Dermatitis

S. K. CHAUDHURY, A. M. O, BAGHJAN TEA
ESTATE (LAKHIMPUR, UPPER ASSAM)

A coolie woman named Salmi, married, aged 15 years, was admitted into the Estate Hospital on 27-6-40 with bad pain in the throat, having no rise of temperature at the time of admission.

On examination the left tonsil was found inflamed with a small white patch on it. Throat smear under microscope revealed pneumococci, diplococci, and a few streptococci. No malarial parasite was found in the blood. Haemoglobin 55%.

She was given alum-potash gargle, Mannel's pigment and the undernoted mixture.

Quinine sulph.	...	gr v
Acid sulph dil.	...	m vii
Tr. ferri perchlor.	...	m xv
Glycerine	...	m xv
Aqua	...	ad oz. 1

This treatment was continued for 5 days. Tonsillitis improved but fever continued.

Urine was examined on 1-7-40. There were B. coli, pus cells and epithelial cells in it.

I prescribed a mixture containing urotropine, oil santal and buchu etc., with no benefit for 5 days. Then I prescribed on 7-7-40 M & B 693 1 gm. T. D. This was continued for 8 days. Temperature came down on the 5th day of M & B treatment i. e. after taking a total dose of 15 gms. M & B 693 was withdrawn after 8 days and she took the urotropine mixture from 15-7-40. Temperature began to rise again from 17-7-40. The same mixture continued up to 27-7-40 having no good result.

On 26-7-40 there was a peculiar small papular rash all over the body. On 28-7-40 she got bad stomatitis, pain all over the body, and rash more abundant. Tonsils looked normal.

A smear from mouth showed some diplococci and diplobacilli. She was again given M & B 693 1 gm. T. D from this date (28-7-40), in addition to antiseptic gargles, etc. Three days later papules became vesicular—some of them being very big. The vesicles began to burst gradually with serious exudation which was free from any bacteria. Calamine lotion was used to treat this condition.

M & B 693 was withdrawn on 2-8-40 as advised by my Medical Officer. By this time stomatitis improved satisfactorily, but temperature continued.

Urine was again examined on 3-8-40. It showed B. coli (scanty), diplococci; urobilin test +. Russo's test +. She was then put on an alkaline mixture which she took up to the date of discharge.

She had constipation for 2 or 3 days which passed off with cascara and castor oil, but temperature showed no improvement at all.

Abscesses appeared on different parts of the body from 12-8-40 and gave trouble upto 21-8-40. These were treated with Iodex—some of them burst and some subsided.

The entire epidermis (from tip of toe to top of head) cast off in about 1½ months time leaving a dry surface. Temperature began to come down from 30-8-40. Urine was again examined on 12-9-40 when it was found normal. Haemoglobin value of blood 65%. She was discharged from hospital on 13-9-40.

A booklet on M & B 693, published by May and Baker (4th edition, Sept. 39, page 15) says — "When Drug dermatitis does occur, it is frequently not until the 9th or 10th day of administration of the drug..... In most cases withdrawal of the drug is followed by regression of the skin rash within the course of the next day or two."

Here, in this case M & B 693 was first given on 7-7-40 and continued for 8 days only. But rashes appeared on 26-7-40—11 days after the withdrawal of the drug, and the trouble continued for many days.

My chief Dr. F. C. McCombie, M. D, B. S. (London), D. T. M. & H., is of opinion that it was a delayed action of M & B 693 causing exfoliative dermatitis, and this is why he advised me to withdraw the drug when I prescribed it for the 2nd time.

I am grateful to my M. O., and my Manager W. Williamson Esqr. for the interest they took in this case and for their kind permission to publish this case note.

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TWO CASES OF CLINICAL INTEREST

J. Dhairyam, M. B. B. S., Government Mental Hospital, Madras

PUERPERAL SEPSIS

An emaciated woman, previously run down by dysentery and malaria, was treated for puerperal sepsis for over 2 months. She was given postural and local treatments, besides vaccines and various intravenous remedies like iodine, hexamine etc. All was of no avail. The temperature was running up daily and her emaciation was increasing. As a last resort intravenous colossal argenticum was tried. The result was remarkable. She improved steadily and was discharged cured. Subsequent to this there were six cases of puerperal sepsis. Two of them were very serious. Temperature kept up above 105, and even went up to 106.5 at a time. In those cases excepting the usual E & Q. mixture and local treatments, only colossal argenticum was given. Every case was discharged cured. For the bad cases 4 or 5 injections were given on every alternate day. Dosage was 10—20 c.c.s. Here the rundown condition of the patient was no contra-indication. No doubt there was a slight reaction in a higher rise of temperature of 1 or 2 degrees. But that was harmless. The injections were given even when the temperature was 104 degrees.

These injections may be given with vaccine-serum treatment, But I had no necessity to use in my later cases anything except colossal argenticum. The important point to note is, the preparation ought to be fresh and clear when seen in light. It ought to be preserved in a cool dark place.

N. B. This note was written in my diary about 10 years back. Now various lines of treatment like Super D Cod Liver Oil or Sulphanilamide group preparations are being given. In spite of these later developments I feel colossal argenticum is a good line of treatment in bad and hopeless cases, with a dry tongue, high temperature and septicæmic conditions. Further I have found colossal argenticum useful in abscess of lung and other septic conditions. Hence I found it necessary to publish this article.

GUINEA WORM DISEASE

Guinea worm infection is a painful and troublesome disease, and has to be completely rooted out. It is prevalent in many Telegu districts. Gradual removal of the worm and sometimes killing it with antiseptics have been tried. Sometimes it affects joints and produces severe arthritis. Local subcutaneous inflammations and abscesses are common. There is much recurrence.

In a number of cases I have tried N. A. B. '3 grams 2 doses, and '45 grams four doses. The first two injections helped to subside the inflammation and the last four helped to prevent recrudescence. In every one of the three cases there was no recurrence and duration of the treatment was cut short compared to the other lines of treatment.

Illustrative case:—A person developed fever and inflammation and swelling in the back, about 6 inches by 2 inches, and in the abdomen about 4 inches by 2 inches, and swelling in the thigh. N.A.B. '3 gram was given. After two days, the temperature went down, inflammation subsided in the abdomen, back and thigh, and the patient was feeling greatly relieved. After the 2nd injection in a week's time the swelling and fever fully subsided and there was no necessity for any surgical interference. Four more weekly injections were given since there was recurrence in a previous case where treatment was stopped after 2 injections. After these there was no recurrence of trouble.

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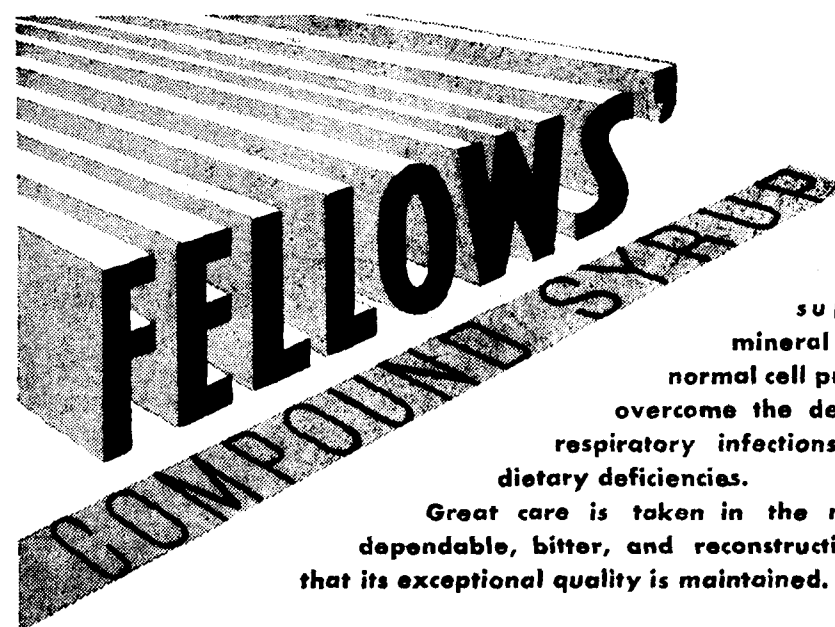
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NEW YEAR GREETINGS

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New Year

IMPORTANT ANNOUNCEMENT

IMPORTANT ANNOUNCEMENT

The 30th Conference of the All-India Medical Licentiates' Association held at Bombay on 22nd and 23rd December 1940 has decided to abolish admission fee of Rs. 2/- for new members and fixed the membership fee at an even rate of Rs. 4/- per annum for all, whether old or new.

This comes into force with effect from 1st January 1941.

It is hoped that this abolition of admission fee will enable a large number of licentiates to become members of the Association.

MANAGING EDITOR,
INDIAN MEDICAL JOURNAL.
1-1-41.

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All communications regarding subscription and remittances of the same should be addressed to Dr. Khan Chand Wohra, Hony. Treasurer, All-India Medical Licentiates' Association, City Dispy., Karnal (Punjab).

All communications regarding policy, programme and work of the All-India Medical Licentiates' Assn. should be addressed to Dr. Manohar Lal Kapur, General Secretary, M.O., I/C. Eye Centre, King Edward Memorial Hospital, Karnal Post (Punjab).

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1941

Time! the corrector where our judgments err; The test of truth and love; the sole philosopher, for all besides are sophists.—*Byron.*

What is time?—The shadow on the dial, the striking of clock, the running of the sand day and night, summer and winter, months, years, centuries—these are but the arbitrary and outward signs—the measure of time but not time itself. Time is the life of the soul.—*Longfellow.*

Help Britain: Standing at the threshold of this new year, Nineteen hundred and forty-one, we look back instinctively, for a while, to the known but oblivious past, and inevitably soon turn round to face the unknown but wishfully hopeful future.

Although measure of time is not time itself, yet by that conventional token we correct our past judgments and test the truth of our actions. And thus we are caught in an endless struggle for a better order of men and things and for better comfort for men and beasts.

We are to-day caught in a deluge of rapidly changing events which seem to herald a new civilisation. Whether it is going to be better or richer than the old none could foretell.

The suffering which the common people of world to-day is passing through, owing to the ambition and greed of a few of their rulers, has never been known to or recorded in history. Wars there were between contending armies, but the populace were living in comparative security and comfort. But the War of 1939, thanks to the abuse of science, is wreaking havoc and destruction of the civilian population, unmindful of the widow's tears or the orphan's wail. There is no one country to-day which is free from the fear of wholesale slaughter. Two mad men of Europe are fiercely ravaging the peace of homes and the normal avocations of men. How long God only knows!

Our country's position is very peculiar, even dangerous. We are irresistably reminded of desultory wars between European nations during the 18th and the 19th centuries and their repercussions in India between their trading representatives, one of whom, the English, became ultimately our rulers. With them we have many quarrels, but they are nothing compared to the danger ahead. We can certainly settle them peacefully after we have helped them to thwart the danger common to both of us. Our New Year's message to our readers is, therefore: Help Britain by all possible means. And our New Year's appeal to Britain is this: Trust India and her leaders, and help them to have the freedom they want without higgling; a grateful and free India would be your staunchest friend and ally. At no period of her long but chequered history had she broken her word of honour or proved faithless to trust.

These are not words of a politician but of a medical editor of a medical journal whose normal avocation is medicine and who by virtue of daily contact with the common people has opportunities to know and understand them intimately.

Our Journal: With the dawn of this year, the *Journal* enters its 35th volume. During these years it has justified its existence and proved its usefulness. It has maintained the continuity of policy as a spokesman of the profession, particularly of the medical licentiates whose position in its body-politic has been rendered nebulous by an unbroken policy of expediency and neglect during the last one hundred years. It has always espoused the cause of the medical licentiates in an unselfish manner and without lowering the ethical and academic standard of the profession or jeopardising the needs of efficient medical relief to our people. At the same time, it has tried to garner the best thoughts and experience of the eminent leaders in medicine and medical research in our country for the use of the general practitioners. A rapid review of its previous thirty-four volumes would indicate a store-house of no mean utility. During 1939, its editorial committee programmed further expansion by way of increased number of pages per issue to accommodate more contributions and

fresh columns on new subjects. But unfortunately War broke out, and the growingly bright financial prospect of the *Journal* became suddenly dim, and the programme of improvements has to be kept in abeyance. On the other hand, the heavy cost of paper and printing has necessitated reduction of its pages and consequent suspension of some of its usual columns. We hope to weather through the present crisis, and in this difficult task we seek the co-operation of its subscribers and their good-will.

Our Association: Notwithstanding carping criticisms and occasional desertions, the All-India Medical Licentiates' Association has continued to serve the licentiates of our country with unflagging zeal and devotion. Its internal administration has been showing improvement every year, and its expansion has been steady, if slow. Its greatest achievement lies in the orientation it has given to the demands of the licentiates from one of request for "better pay and promotion" to that of equal and equitable treatment. At the same time it has commenced to urge for the establishment of a uniform minimum standard of medical education and qualification which, strangely enough, has not yet been defined either by the Provincial Medical Acts (1912-1918) or by the Indian Medical Council Act (1933), and the absence of which has been now realised as the cause of the anomalous position of the licentiates. Many events have led the Association to take up this stand. Among them, the more important are: the enormous and rapid growth of licentiates as private practitioners, the introduction of honorary scheme of staffing important Government hospitals, and the non-recognition of the licentiates (who form the greatest number in the profession) by the Indian Medical Council (1933). The only way of escape from this stalemate was to work for the statutory establishment of a uniform minimum standard of medical education for our country. In pursuance of this policy, the Association recently¹ led a deputation to the Medical Council of India which pleaded strongly for the establishment of a minimum standard and for the interim recognition of the licentiates by, and their representation in, the Indian Medical Council. Consistent with this policy the Association has successfully influenced the Provincial Governments of Madras, the U. P. and the Punjab to integrate the medical school education to the standard laid down by the Indian Medical Council in the belief that the present standard of the Council for the 'higher qualification in Medicine' would perhaps be the future standard of uniform minimum standard of medical education for our country. Another achievement of the Association is the effecting of amendment to the Madras Medical Act of 1914 in such a way as "to abolish class distinctions between the

¹ For fuller details please see December 1940, Supplement to the *Indian Medical Journal*.

CURRENT COMMENTS

Circumcision—a New Technique

Bluger² writes that more often than not much of the foreskin is unnecessarily removed, particularly in its dorsal aspect. To avoid this, he recommends the following procedure: The tip of the foreskin is taken between the index finger and the thumb of the left hand, and the penis elevated *without tension*. After defining the corona, its boundary is marked by Bonney's blue paint. The line so produced is circular on the dorsal aspect of the penis and V shaped on its under surface. The foreskin is now cut along this line with the help of a clamp, and the skin is sutured to the mucosa by means of interrupted catgut sutures. In children suturing is not necessary. The advantages of this technique are: (1) corona is free from injury (2) there is no scalloping of the skin edge and (3) only the minimum foreskin is removed. Bluger's suggestion is certainly very sensible, but we think an ordinary marking pencil is sufficient instead of Bonney's blue paint which may not be available to the practitioners in this country.

Capillary Fragility

The determination of capillary fragility is useful in many a pathological state, and we therefore welcome the introduction of a standard method of determining the degree of capillary fragility by Bell and others.³ This method is a slight modification of Gothlin's, and consists in enumerating the petechial points on the skin of the ante-cubital fossa after raising the capillary pressure to 15–30 mm. Hg above the normal by means of a sphygmomanometer. A standard light of 60 or 100 watts is advised. The authors analysed the state of capillaries in 346 healthy British students, and the criterion applied was that if the petechial points are less than 8, it is normal, and if more than 8 it is abnormal. In their series, 89.3% were under 8. They also observe that in most cases where the petechial count was 8 or over, the ingestion of vitamin C reduced the count to less than 8 in two weeks, but that the ingestion of vitamin C has no effect on counts

² *Br. Med. J.*, Aug. 10, 1940, p. 190.

³ *Lancet*, Aug. 10, 1940, p. 155.

different classes of practitioners and to make the Madras Medical Council predominantly an elective body". All these are no mean achievements of the Association, but for whose incessant vigilance, fore-sight and activity these reforms would not have been by now initiated at all.

Our Duty: The duty of the licentiates is to strengthen the Association and its *Journal* by joining it in large numbers, to foster unity amongst themselves and to guide the Association along fruitful paths of service to our people. Each Branch of the Association must extend its membership, enlarge its sphere of activity and emulate its Parent Body in work and service for the profession and the country.

Let us therefore enter the New Year with renewed hopes of better work and better service; for, without hopes there can be no endeavour.

below 8. They further observe that the two factors which influence capillary fragility in health are menstruation and relative vitamin C deficiency, while among the abnormal influences may be counted prolonged fevers and administration of heavy metals. The method suggested by Bell and others is so simple that it can be made a routine procedure for approximately determining either the state of vitamin C nutrition or the presence of capillary fragility due to other causes.

Stilbestrol

Since Dodds (1938) announced the preparation of the synthetic estrogen, stilbestrol, a number of clinical and experimental studies of this synthetic substitute for natural estrogens have been undertaken, particularly in America and Great Britain, with a view to base stilbestrol on a sure therapeutic foundation. The very idea of the synthetic preparation was to overcome the disadvantages of natural oestrogens. These disadvantages are: (1) they are expensive, (2) they are orally ineffective and (3) they are difficult to prepare. There is no doubt that in these respects stilbestrol steals an easy march over the natural oestrogens, and therapeutically it has been found equally effective in ameliorating the symptoms of hypogonadism and menopause. Physiologically it has been found to produce positive estrous vaginal swears, proliferative changes in the endometrium and breast growth. But there has been considerable disagreement concerning its toxicity. Mac Bryde and others⁴ give an excellent and brief review of clinical and experimental studies regarding its toxicity. The two most distressing toxic symptoms are nausea and vomiting. Less common are abdominal distress, paresthesia, vertigo, thirst, an acute psychotic reaction and cutaneous rashes. Even hepatic improvement is considered probable. The incidence of these toxic symptoms seems to vary. For example, in the authors' series, not more than 16% had unpleasant symptoms whereas Shom and his co-workers found that 35 out of 41 women (80%) had toxic symptoms. Therefore, we entirely agree with the authors that further studies of stilbestrol and related compounds are indicated before the substance is released for general use. Unfortunately, however, we find synthetic stilbestrol already in the market, and in large use by the practitioners. We hope that for the sake of good reputation of this very useful preparation, caution may be exercised in its use lest it may be unnecessarily discredited, and a careful watch for untoward symptoms maintained. There is every possibility of mistaking the toxic symptoms for the symptoms of the condition for which stilbestrol is administered.

Histaminase in the Treatment of Allergic Dermatoses

Histaminase is a compound of physiologic albuminoid substance obtained from the intestinal mucous membrane, and is administered orally in the form of enteric coated tablets. Its dosage is fixed in terms of units, each unit containing the necessary amount of histaminase to oxidise 1 mg. of histamine. It has been shown that there is a release of so-called H substance in the blood during allergic shock and that this H substance may be histamine. The therapeutic

⁴ *J. A. M. A.*, Aug. 1, 1940, p. 440.

MEDICO-LEGAL NOTES

Practical Points in Poisons

• T. A. Gopalakrishna Rao, L. M. P.,
Medical Officer, Thondamuthur

I. Special Antidotes

For Carbolic acid	= Epsom or Glauber's salt.
For Arsenic	= Sodium Thiosulphate (I. V.)
For Morphine	= (a) Pot. permanganas grains 10 to a pint of water (for washing out stomach) (b) Atropine sulphate
For Strychnine	= Sodium Amytal
For Cyanide salts	= Methylene Blue. 50% of a 1% solution. (I. V.)
For Mercury	= Sodium Thio sulphate (I. V.) and by mouth white of egg and milk.
For Wood Charcoal	= Iodides, Apomorphine.
For Phosphorus	= Copper sulphate.
For Mushrooms	= Atropine sulphate.

II. Diagnostic Notes on Poisoning

- Drugs generally given for murder*
Arsenic, Antimony, Aconite, Opium, and strychnine.
- Drugs generally used for suicide.*
Carbolic acid, Oxalic acid, Prussic acid and Opium.
- Drugs used as abortifacients.*
Ergot, Quinine, Spanish fly, Oleander, Colocynth.
- Smell of drugs on breath.*
Prussic acid, Laudanum, Carbolic acid, Ammonia, Chloroform.
- Mouth bleached.*
Carbolic acid, Ammonia.
- Patient vomiting.*
Arsenic, Antimony, Digitalis, Aconite, Ammonia and Phosphorus.
- Patient purged.*
Digitalis, Arsenic and corrosive sublimate.

justification for histaminase lies in its ability to inactivate histamine and thereby alleviate the symptoms of allergy, particularly allergic dermatoses. Goldberg⁵ reviews 35 cases treated with histaminase and found that it alleviated all the symptoms and controlled the pruritis. This, of course, is on the presumption that histamine is the trigger mechanism which prepares the skin for various reactions, particularly the triple response of vasodilatation, wheal-like oedema of the skin and reflex nervous dilatation in the form of dermatographism or urticaria.

Histaminase can be given both orally and by injection, and Goldberg has used it successfully for papular urticaria, atopic dermatitis, dermatographism, allergic eczema, chronic urticaria and idiopathic pruritis. He found no untoward reactions.

⁵ *J. A. M. A.*, Aug. 10, 1940, p. 429.

- (h) *Cramps.*
Lead.
- (i) *Patient paralysed.*
Aconite, Conium, Gelsmium, Physostigmine.
- (j) *Pupils dilated.*
Belladonna, Hyocyamus, Opium (late stage), Alcohol, Aconite, Chloroform.
- (k) *Pupils contracted.*
Opium (early stages), Physostigmine, Chloral, Carbolic acid.
- (l) *Patient comatose.*
Opium, Alcohol, Chloral, Chloroform.
- (m) *Patient collapsed.*
Carbolic acid, Aconite, Arsenic, Antipyrin.
- (n) *Patient cyanosed.*
Acetanilide, Carbolic acid.
- (o) *Patient delirious.*
Belladonna, Hyocyamus, Alcohol, Canabis indica.
- (p) *Patient tetanized.*
Strychnine, Rat poison, Antimony and Arsenic.
- (q) *Skin moist.*
Opium, Aconite, Alcohol, Tobacco.
- (r) *Skin dry.*
Belladonna, Hyocyamus, stramonium.

Treatment

EMETICS

When an emetic is ordered, one of the following should be given unless a special emetic is mentioned.

- (a) Mustard and water—A tablespoonful of mustard stirred up in two-thirds of a tumbler of tepid water.
- (b) Sulphate of zinc—Thirty grains dissolved in half a tumbler of warm water.
- (c) Warm water given copiously.
- (d) Common salt—Two tablespoonfuls in 8 oz. of tepid water.
- (e) Tincture Ipecacuanhae (Vin. Ipecac) $\frac{1}{2}$ to 1 fl. oz.

DEMULCENT DRINKS

When demulcent drinks are ordered one or more of the following may be used :

- (a) Albumin water or white of egg.
- (b) Barley water
- (c) Milk
- (d) Compound Almond mixture
- (e) Olive oil.

Special Methods of treatment

1. *Carbolic acid or phenol*:—It burns the mouth and the entire gastro-intestinal tract. It is quickly absorbed and produces striking cyanosis. Respiratory failure causes death. In less severe cases, rapid pulse, clammy perspiration and the general picture of shock are noticed.

Treatment:—Epsom or Glauber's salts are the antidotes. Brandy and ether may be used freely for the stimulating effect.

2. *Arsenic*:—White Arsenic. Symptoms produced rapidly within half to one hour. Initial symptoms are dryness and constriction of the throat, difficulty in swallowing and discomfort in the epigastrium, nausea and vomiting. Flocculent diarrhoea, suppression of urine, dizziness, headache and pain in the muscles follow. Collapse and coma precede death which may occur in 24 hours or at least in two or three days. The antidote for arsenic by mouth is the hydroxide of iron which may be given in unlimited quantities. It oxidises the arsenous acid into an arsenic compound and forms iron arsenate, which is not so readily absorbable and if absorbed, it is not so easily ionised and therefore less poisonous. It must be removed by repeated lavage. When arsenical dermatitis sets in sodium thio-sulphate should be employed as follows:

*8 gramme of sodium thio-sulphate in 10 cc of Distilled water					I. V. 1st day
45	"	"	"	"	2nd day
6	"	"	"	"	3rd day
9	"	"	"	"	4th day
12	"	"	"	"	6th day
18	"	"	"	"	8th day

1 gramme in water by mouth daily throughout the course of treatment by injections.

3.—*Mercury*: Milk and eggs are immediate antidotes followed by stomach tube or emetic immediately. Magnesium carbonas by mouth. Sodium Thio-sulphate I.V. injection (grs 15 in 10 cc of distilled water).

4. *Morphine*:—Opium poisoning calls for lavage of the stomach with pottassium permanganas 1 in 1000 solution or grs. 10 to a pint of water. Physiological antidote is atropine. The great danger is that the patient will fall asleep and that respiratory failure will set in. Coffee should be freely administered. Fatal dose is 1 grain. The fatal period is from 1 to 12 hours. If respiration could be maintained for 24 hours recovery usually ensues.

5. *Strychnine*:—Sodium amytal is the drug which has most success as an antidote. Given I. V. in doses depending on the amount of strychnine taken, the severity of convulsions etc. Initial I. V. dose is $7\frac{1}{2}$ grains in nearly any strength of solution and always indicated as a preliminary. One patient is recorded of having received 18 gramme of the drug in a period of two hours with recovery.

6. *Cyanide Salts*:—Hydrocyanic acid (Prussic acid) is one of the most rapidly acting poisons. It has been fatal in a dose of 1 grain. The usual fatal minimal dose is however 24 grains. It forms after absorption with hæmoglobin a stable compound cynohæmoglobin, which action deprives the tissues of oxygen. Treatment must be prompt. Methylene Blue (Methyl thionine chloride U. S. A.) lately introduced for that purpose appears to be an effective antidote. 50 c.c. of a 1% solution I. V. is the method suggested.

7. *Phosphorus*:—Gastric lavage with pottassium permangans solution as in morphia poisoning should be promptly administered. Pottassium permanganas oxidises phosphoric acid which is non-toxic. Hydrogen peroxide and copper sulphate in dilute solutions are also used. Fats should not be included in the articles of dietary for several days even after recovery.



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The Doctor in Court*

• Rai Bahadur Dr. J. P. Modi, Late Reader in Forensic Medicine, Lucknow University

The medical practitioner, especially in private practice, as a rule, regards the Court with a natural and rooted aversion, as he is under the impression that he will be kept waiting about the Court for a long time if he is called to give evidence in a case and he will not be able to attend any urgent case of serious illness during the period that he will be at the Court for his law case to come on, and thus incur a financial loss by losing his fee and lose his patient as well. But I can state from my personal experience that this is a wrong impression. The Court is always willing to show special consideration to a medical practitioner when called as a witness. It is quite familiar with the nature of his duties and does not, therefore, keep him in attendance longer than necessary and frequently interposes his evidence out of its turn and releases him at the earliest moment. Courtesy, on either side, begets courtesy; hence the medical practitioner must observe punctuality in attending the Court, unless he is prevented from doing so owing to some special reason, such as attending upon a dying patient or a confinement case. In that case he must inform the Court at once, giving full reasons and offering a polite apology for non-attendance.

A medical man is generally a common and an expert witness. He is a common witness when he gives evidence on facts observed by himself, e.g., as regards the variety, size and position of the injuries or the appearance of a dead body and of its surroundings, while he is an expert witness when he is asked to interpret those facts in the light of his professional knowledge and experience, or to form his opinion on facts related to him by others.

In criminal trials, a common witness is entitled to the fee which the Court lays down—a very trifling fee which generally does not cover the expenses of a witness who is taken away from a day's work. An expert witness can claim a reasonable fee from the party who summons him to give expert evidence, but the presiding officer is to judge the amount whether it is reasonable or not and not the expert witness. An expert witness when summoned cannot refuse to attend the Court and to give evidence on the ground that the fee offered to him is inadequate. The Court is empowered to enforce his attendance.

As soon as a medical witness enters the witness-box, he is sworn on oath or affirmation and is examined-in-chief by the party who calls him according to the rules of evidence. In this examination the object is to bring to light "by questions which do not suggest their answers" the facts relevant to the issue to be tried which are within his personal knowledge. It is not possible to remember facts about the case which he might have observed some days, weeks, months or even years ago; hence he is allowed to

refresh his memory from his original medico-legal report already forwarded to the Court or from the notes brought with him to the Court provided they agree word for word with the original, were made at the time of or immediately after, the occurrence of the event when the facts were quite fresh in his mind, and were written by him or certified to be correct by him, if written by his assistant. In the latter case, the notes may be inspected by the opposing counsel. When this examination is finished, the witness is cross-examined by the defending counsel, who looks upon him as a hostile witness and tries to belittle his evidence, and to get him to contradict himself by a series of searching questions. In cross-examination the witness may be asked leading questions in order to obtain evidence favourable to the accused and may also be asked any questions which tend to test his veracity, to discover his knowledge, experience and qualifications and even to injure his character. It must, however, be remembered that the Court can always forbid any question which appears to it to insult or annoy, or which, though proper in itself, appears to the Court needlessly offensive in form (vide section 152, I. E. Act.).

The cross-examination may be a very trying and a very severe one, and may last for hours or even days, but the Court can disallow irrelevant questions and can cut short the cross-examination. On one occasion I was cross-examined for six days—(the examination lasting for two hours every afternoon)—in a civil suit for the recovery of a professional fee in which an issue of malpractice was raised. On another occasion, I was cross-examined for six hours in a case of murder.

When the cross-examination is over, counsel who conducted the examination-in-chief has the right to examine the witness on any point rendered doubtful, or on any new evidence produced during the course of cross-examination. Meanwhile the Judge and the jury or assessors have the right to put questions to, and elicit answers from, the witness in the course of the proceedings.

The medical witness should remember that "the privilege of giving evidence in a law Court carries with it a great responsibility which affects not only the persons involved in the litigation according to the conclusions which he arrives at, but also affects his professional reputation. If the evidence is not satisfactory, his reputation may suffer".

It has been frequently remarked that medical practitioners make poor witnesses in a Court of Law, but this is an unmerited censure, inasmuch as critics forget that the questions which are put to a medical witness are of a very intricate and difficult nature as compared to those put to an ordinary witness. There are always good, bad and indifferent witnesses in every profession, and under similar conditions there is no reason to suppose that a larger number of incompetent witnesses would come from the medical profession than from the legal or any other profession. It is, however, true that physicians do not familiarise themselves with a few of the fundamental facts involved in the law of testimony and evidence and are not often prepared for the questions which are likely to arise in a case in which they know they will be required to give evidence.

The medical practitioner who is summoned as a witness should be guided by a few simple rules so that he

* A paper read before the Medico-Legal Society, Bihar, on 29-9-39. Reproduced from *P. J. Med.* 15-3-1940 with due acknowledgment.

may appear to the best advantage while in the witness-box. He should never undertake to be a witness, unless he is wholly satisfied as to the merits of the case from the facts laid before him. He should make himself familiar with all the facts upon which he is to testify before he goes to Court and should never make a statement in his report which he cannot substantiate later in the witness-box. In fact, while giving his opinion he should mention the points in favour of the view that he adopts as well as those against it. It is also well to refresh his memory by reference to the view held by standard writers in relation to the subject in hand. In the witness-box his bearing and conduct should be grave and dignified and he should remember that the conviction or acquittal of a fellow human being may hang upon his testimony in a criminal trial and should, therefore, avoid any flippancy of manner. He should be definite about dates, sizes, distances, weights and all other measurements. He should illustrate his remarks about injuries, etc., by means of diagrams, models and photographs as far as possible. In describing them he should use plain and simple language. He should remember that assessors or jurors are usually of ordinary intelligence and education and the bench and the bar, though they may possess a certain amount of medical knowledge, are not in a position to follow medical evidence couched in the mysterious words and phrases of medical science. He should, therefore, avoid using technical terms as well as exaggerations. It must be remembered that only an ignorant man tries to exaggerate his importance by using long scientific words and phrases. Taylor quotes the classical example of a medical man who described a black-eye as "a severe confusion of the integuments under the left orbit, with great extravasation of blood and oedema in the surrounding cellular tissue, which was in a tumefied condition. There was also considerable abrasion of the cuticle". On certain occasions when it is difficult to avoid a technical term, the medical witness should try to explain it in ordinary language as far as possible, but he should be careful of the use of the language in paraphrasing it so that it might not lead to misunderstanding.

In the course of cross-examination the medical witness should never lose temper or get annoyed even though the questions put to him may appear stupid or irritating, but he should answer questions with coolness and composure and without any hesitation. At the trial of a murder case in 1921 or 1922 defence counsel mentioned every time he put me a question in cross-examination that I would leave the Court a wiser and a sadder man, and threatened me that he would call a specialist from Calcutta to rebut my evidence. The cross-examination lasted for six hours. The irony of fate was that he was referring to my book on Medical Jurisprudence while cross-examining me. On several occasions the City Magistrate reprimanded him for using discourteous language but without any avail. I was not perturbed by his remarks but smilingly answered his questions with unusual courtesy. In the end, when he found that he could not shake me in my evidence he requested me at the suggestion of a senior lawyer kindly to inform the Court if there was any point in favour of his clients. I replied that there was a very important point in favour of his clients, but would leave it for his Calcutta specialist: it was not

my fault if he could not get it out of me after such a prolonged cross-examination. He said that it was not possible for him to master the subject by studying my work for three days. Whereupon I retorted that this would be a lesson to him not to dabble in the subject of which he had practically no knowledge and I hoped that he would leave the Court a wiser and a sadder man. At this stage the Magistrate asked me to dictate that point to him, but I told him that there was no point favourable to the accused and it was my turn to pull his leg.

DREAD OF CROSS-EXAMINATION

The medical witness should possess self-confidence and should never show inferiority-complex as he should remember that the cross-examining lawyer may be very talented and learned in law, but he has picked up his medical knowledge by reading at random passages germane to the points at issue from some books or by consulting some medical practitioner who may not be competent enough to give his opinion. During cross-examination I was once asked to describe the condition of the sutures of the brain. I said that the brain had no sutures. The pleader asked how was it that there were no sutures in the brain. I referred him to God Almighty who created the brain. The pleader fumbled and could not ask any further question. Nunan gives an example of his experience. The question of determination of age from teeth arose in the case of a kidnapped girl. He said there was no sign whatever of the third molar teeth. After some discussion, the lawyer opened a massive and impressive volume and, turning over the pages, asked, "What about the wisdom teeth in this case?" He said that the lawyer and he had been discussing the wisdom teeth for more than twenty minutes. The third molar teeth were the wisdom teeth. The cross-examination terminated abruptly.

The cross-examination by itself is an art, and a lawyer has his own limitations as is the case with every other expert. It is bound to recoil upon the lawyer if he does not know how to proceed and when to stop. A young barrister once asked me to inform him of the period of my experience in medico-legal work. I said, "more than your age, my boy." The Judge smiled and asked me what his age was. I wrote 28 years on his writing pad. The Judge inquired of the barrister who said that he was 28 years old. The Judge smiled and showed to the lawyer what I had written on his pad. At that time one of the assessors asked me if I could tell his age. I advised him to see me in my office where I would give him an age certificate if he paid my fees provided he did not make use of it in a civil case, as it was my principle not to give age certificates to persons involved in civil suits. In a case under section 323, I. P. C., the complainant had a swelling of one of his testes, which, I mentioned, might be due to pressure or a blow with a blunt weapon. In cross-examination I informed the Court that the swelling might be due to some tumour, gonorrhoea, syphilis or tuberculosis. At this stage I asked the defending lawyer not to proceed further with the examination. I might mention for your information that owing to my reputation as a fearless, honest and impartial medical jurist I could say certain things in the course of the examination which other witnesses could not dare say. The gentleman did not listen to me and on further cross-examination he could elicit from

me that the complainant was thoroughly examined by me and was not suffering from any of those diseases. This statement was damaging to his client's cause. In his book on "Limitations of experts" Hankin quotes a case in which counsel for defence asked a bar-maid in the witness-box if she recognised the prisoner in the dock. She replied in the affirmative, as the fellow had visited her inn on a particular evening for a drink. In answer to a further query she said that two to three hundred persons visited her inn every evening for drinks. His junior sitting by his side got up and whispered in his ear not to press the point further, but the senior counsel thought it derogatory to follow his junior's advice and asked the maid how she could remember the prisoner by seeing him only one evening when so many persons visited her inn every evening. To his mortification he heard her state that it was due to the exquisite beauty of his face. The Judge and the members of the jury looked at the prisoner who was really handsome and attractive.

In a case under section 376 I. P. C., where the accused had an abrasion on the inner side of the fore-skin of his penis, his pleader asked me if it could be caused during the process of climbing a tree. My reply to him was that one who was circumcised could not appreciate its impossibility. Moreover, it was difficult to conceive of a sane man climbing a tree with his penis dangling out of his dhoti or pyjama and that while in a position of erection.

In a case under section 377 I. P. C., the lawyer for defence asked me in cross-examination as to whether a man could use greater force when he rode on the passive agent while committing the act or when he was lying by his side during the act. A senior lawyer present in Court persuaded him not to ask such a question but he insisted on a reply from me. The Magistrate was annoyed very much as he thought the question to be a stupid one. But I told the Magistrate that with his permission I would answer the question for a medical jurist was expected to know everything under the sun. I commenced my reply with a preliminary remark that the question did not require any knowledge of medicine. It was a question of personal experience, and I was sorry to state that the Court nor I had any experience in this question of fact and would, therefore, be very grateful if the lawyer would tell us his experience in this matter. I would also make him immortal by quoting him as an authority on this point. I need not state that he collapsed in his chair and informed the Magistrate that he had no further question to ask me in cross-examination.

The medical witness should avoid lengthy discussions, especially theoretical arguments: these are likely to create a bad impression. His answers should never be hesitating but should be precise and clear and in the form of "yes or no". However, if he finds it difficult to answer any question in the affirmative or negative without creating an ambiguity, he should not be browbeaten by the lawyer but should inform him that he was there to tell the truth, the whole truth and nothing but the truth, and would, therefore, amplify or explain his answer after obtaining permission from the Judge.

The medical witness should never hesitate—in fact he is the wisest witness who knows when to say "I do not know". By admitting that he does not know a particular point he will gain the confidence of the

presiding officer in Court. He should never hazard a guess, for he would be found out soon and would be lowered in the estimation of every one present in Court.

The medical witness is supposed to express an opinion from his own knowledge and experience. He should not quote authorities to substantiate his opinion unless asked.

When a quotation is made by counsel from a book on medical jurisprudence or some other subject, the medical witness, before replying the question based on it, should see that the quotation has been fairly and fully given, due regard being paid to the context. He should also notice the date of publication. Neglect of this precaution may land him into difficulty. Once a Judge told me that he had studied a particular question relating to the case in which I was giving evidence from the book lying on his table. I said that it was very old edition and since its publication a lot of water had flowed down the Gumti under the bridge. I would have furnished him with the latest edition if he had written to me. He picked up the book and found that it was published in 1905, and this incident happened in 1930. The Judge did not ask any questions to me.

Even though a medical witness is called by one side to give evidence in Court, he should not forget his duty towards the opposite party of honesty and fair dealing. He should also remember that the Judge regards him not as an advocate put forward by one side to establish its case but as an officer of justice to help the Court to elicit the truth. It is, therefore, the duty of a medical witness to state fairly all the medical facts bearing on the case without any reservation. Hence my advice to him is to volunteer statements and suggest questions to Court, especially when he finds that there is danger of justice being miscarried owing to the Court's failure to elicit any important point. This becomes much more necessary when we know that in a majority of cases the accused is never defended in a Magistrate's Court, and unless he is a well-to-do person, he is generally undefended or defended by a very junior lawyer in the higher courts. I would further advise a medical witness to draw a sharp line of distinction between matters of direct observation and matters of inference and speculation: he should be absolutely direct as to the first and guarded as to the second category.

I would suggest a preliminary consultation among medical men who are going to give evidence on behalf of the defence and prosecution in any trial so that they can clear up all the doubtful points and come to a complete agreement which may be put before the Court as a considered medical opinion on the case for the benefit of the Judge. If this is not possible, I would suggest that a medical assessor be appointed to sit with the Judge to assist him in any difficulty that may arise in understanding technical medical problems in the course of the inquiry.

I shall not touch the vexed question of professional secrecy, as it is a very important subject which would occupy a whole evening for discussion.

In conclusion, I would appeal to my lawyer confere not to roar like a lion and bully the poor medical witness standing in the witness-box as a meek lamb but to bear with him patiently when he commits some honest mistakes or discrepancies in his evidence, as by temperament and training he is not suited to appraise the evidence in its true perspective.

INDIAN MEDICAL NEWS

(From our own Correspondent)

PUBLIC HEALTH IN MADRAS

The outstanding features in the report for 1939 are the reduction in the mortality from cholera (2,115 deaths) and plague (324 deaths). As regards cholera the above figure is the lowest on record during the last 58 years, which may be attributed to the general awakening of the public to the dangers of this disease, the promptness of the Public Health Department in taking all the necessary steps to prevent its spread and last but not least the co-operation of the various local bodies, who have exhibited generally their readiness to sanction the necessary funds to meet the emergent expenditure.

With regard to plague, the number of deaths is again the lowest on record and it may be safely stated that the preventive measures like cyanogas fumigation have played a very important part in keeping down the incidence of this disease. The continuation of these measures for the last few years has undoubtedly been responsible for this satisfactory result and it is hoped that perseverance in continuing the adoption of these steps for some years to come will play an undoubted and supreme part in not only completely controlling this disease but probably in its complete eradication. The grant by the Government on a half contributory basis to several districts has acted as a tremendous stimulus to the local bodies concerned in not only making them pay their moiety with readiness but has also created an interest in them in the welfare of their rate-payers.

Smallpox took a toll of 3,120 lives as against 2,273 in 1938, in spite of improvement in vaccination and re-vaccination figures. It is well-known that small-pox has no terror for the people and is treated with a casualness resulting in ignoring the efficacy of vaccination and revaccination. Despite this strange outlook the Public Health Department has been doing its best to immunise the population. The fact that the case mortality among the unprotected was 30 per cent as against 8.3 per cent among the vaccinated does not need any stretch of imagination to grasp the advantages of protection: the figure for the vaccinated would have been much less had the public taken advantage of immunisation and not allowed long intervals to elapse between their primary vaccination and re-vaccination.

The number of deaths under fevers and all other causes must remain unsatisfactory in the absence of qualified agencies for returning accurate diagnoses. It is hoped that the training of rural medical practitioners in public health work, even though their number is limited, will go some way in removing a little of what must be admitted as an unsatisfactory position.

A perusal of the report will indicate that maternity and child-welfare work is making a progressive and satisfactory advance. It appears desirable and necessary that some financial assistance from the Government to the local bodies would go a long way in giving the necessary encouragement for the further expansion of this activity.

It is satisfactory to note that no case of any infectious diseases occurred at any fair or festival. The aim of the Public Health Department is to establish that the occurrence of such diseases in any congregation should be avoided at all costs.

Anti-malarial works at Egmore, Pattukkottai and Wynaad are being carried out and the results watched. It is expected that as the result of such work, necessary data will be obtained which will be of practical value not only to this Province but also to the rest of India and other parts of the world where similar conditions prevail.

The Poonamallee Health Unit has continued to be useful. Assiduous, diligent and persistent propaganda and contact with the people has succeeded in winning over the female population: so much so that maternity and child-welfare work is one of the main sheet anchors for the existence of this Unit.

MANUFACTURE OF MEDICAL SUPPLIES

Arrangements have been made by the Director-General, Indian Medical Service, for the production by private firms in India of 150,000 packets each of three yards absorbent gauze. These packets were formerly made almost exclusively in medical stores depot factories. As enormous numbers are now required, orders have been placed with suitable firms.

Chloroform manufactured by a Bengal firm has now been tested and found satisfactory. Before orders are placed with the firm a clinical trial is being arranged in some of the big civil and military hospitals.

Vulcanite containers for pills and tablets have now been substituted by Indian ashwood containers. A sample of atropine made by an Indian firm has been received and is being tested.

NUTRITION COMMITTEE FOR BENGAL

In order to initiate a uniform nutrition policy in this province and to stimulate and co-ordinate nutritional research in different institutions operating here, a Committee, with Lt.-Col. A. O. Chatterjee, Director of Public Health, as convener, has been set up by the Government of Bengal.

This Committee, to be known as "The Bengal Nutrition Committee", is expected to function as an authoritative body, and to be the agency of nutritional publicity work on sound lines. Ten specialist sub-committees have been formed under it to deal with different aspects of the nutrition problem.

Epitome of Indian Medical Literature

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(2) Gastric acidity in cholera—Pasricha, Malik and Gosh	670

(1) A specially prepared anti-sera from the hydrocele fluid containing micro-filaria was injected in 76 cases of filariasis, of which 20 were acute and 56 chronic. All the 20 acute cases were either cured for the time being or showed a marked improvement. Out of the 56 chronic cases, 51 decidedly improved and five were unaffected by treatment. These five were cases of either orchitis or hydrocele. There was marked alleviation of symptoms in all cases. The authors describe the technique of anti-sera preparation. They also give notes of cases of special interest.

(2) The authors find that in 25 individuals who had recovered from an attack of cholera, achlorhydria (after a standard alcohol test meal) was found in 9 or 36%; hypochlorhydria in 5 or 20%; low normal acid curve in 8 or 32%; and an average normal acid curve in 3 or 12%. The occurrence of low acid secretion in a large proportion of cases following an attack of cholera is explained by the authors as due to: (1) acute gastritis, (2) as a sequelae of the state of anhydromia and (3) as the result of natural selection that has taken place in the sample of cholera convalescents.

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(3) Certain aspects of artificial pneumothorax—Whig	58
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(3) How long collapse should be kept up is one of the questions which the author discusses in this article. He also discusses some of the common complications of artificial pneumothorax.

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(4) Incidence of Bovine type of tuberculosis in man—Pandalai	627
(5) Male sex hormone therapy in the females—Mukherji	647
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(4) Pandalai suggests that the determination of the type of the infecting tuberculosis bacilli, whether bovine or human, will be of extreme interest in the study of Indian tuberculosis. The author submitted thirteen strains of mycobacteria obtained from various human sources to detailed cultural study. He found that 11 of them appeared to belong to human type, while 2 were of doubtful origin.

(5) Mukherji writes that the place of testosterone propionate in the treatment of metro-menorrhagia and in inhibition of lactation has in recent years been fairly established. Further experimental studies are likely to open the field of its usefulness in other gynecological conditions associated with hyper-oestrinemia. The author gives an account of 32 cases where testosterone therapy was instituted. The mode of action of the drug is imperfectly known and the results also are not uniform.

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Physical examination as a guide to treatment—Chandrachud	713
(6) Malaria in children—Lilamwalla	775

(6) The author urges that mere clinical diagnosis of malaria in children should not be taken as absolutely correct. Out of 233 such cases suspected of malaria on clinical grounds, only 100 were positive, i. e., about 43%. He therefore pleads for the completion of diagnosis with proper typing of the parasites.

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(7) A new remedy for epilepsy—Patel	743
Jejunoplasty as a treatment for vicious vomiting after gastro-jejunostomy—Gharpure	750

(7) Patel writes that most of the observers have confirmed the results reported by Merrit and Putnam, except for the varying and more toxic symptoms noted by them. Sodium diphenyl hydantoinate is of great value in some cases where other anti-convulsants have partly or completely failed or have ceased to exert the same effect as before. The author gives notes of 3 cases of epilepsy treated with this new drug.

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(8) Lowe and Dharmendra give an exhaustive review of literature on lepromin test, and on the basis of this and their own experience they write that differences in results are due to differences in the lepromin used, differences in the method of reading

ABSTRACTS

Preoperative medication.—Priscilla Sellman, Surg. Clin. North America, *Lahey Clinic Number*, 20: 621-629, June 1940.

The purpose of preliminary medication is to relieve anxiety, to depress cerebral activity, to inhibit psychic shock and to aid the course of the anesthesia. In an ideal preoperative narcosis, the patient is calm and drowsy but not stuporous. He is co-operative but amnesic. Respiration and blood pressure are not depressed. Preoperative medication should not be dismissed as a routine procedure. Its selection should be based on the needs of the individual patient and the type of anesthesia to be given. When used in this way it is a valuable aid to anesthesia.

Preliminary to ethylene and nitrous oxide anesthesia: Fairly large doses of morphine and scopolamine are required for good effect with these relatively less potent gases. Or 60 to 80 mg. of avertin per kilogram of body weight, given by rectum 40 minutes before operation, will, with nitrous oxide anesthesia, produce adequate relaxation with no lack of oxygen. Small divided doses of sodium pentothal may be given intravenously with the nitrous oxide to augment its effect. Both the avertin and sodium pentothal are usually preceded by morphine and atropine one and one half hours before operation.

Preliminary to ether and vinyl ether anesthesia: Atropine is used to reduce the amount of secretion. Morphine and nembutal may be added.

Preliminary to spinal anesthesia: The success of spinal anesthesia depends largely on the efficacy of the preoperative medication. Larger doses of drugs are used for spinal than for inhalation anesthesia. The average is approximately pantopan, grain 1/3, with scopolamine, grain 1/150, given subcutaneously two hours before operation. The use of pantopan instead of morphine

results and the differences in the reaction of various races. They therefore suggest: (1) standardization of methods of preparation (2) uniformity in the methods of reading results (3) further studies and observations on this new basis of test.

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(9) The investigations of a case of sterility with remarks on its treatment—Spackman	91
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(9) Spackman gives full details as to the procedure to be adopted in examining a case of sterility under the following heads: (1) menstrual history (2) sexual history (3) physical examination of external genitals (4) speculum examination of the passages (5) hystero-salpingography (6) biopsy. As regards treatment he recommends (a) implanting of tablets of pure oestrone subcutaneously, (b) artificial insemination (not always successful), (c) salpingostomy (results disappointing).

seems to reduce the occurrence of nausea and vomiting during operation. Nembutal, grains 1½ to 3, is given by mouth one hour before operation. These doses are varied according to the needs of the individual patient.

Preliminary to regional anesthesia: Nembutal, at least gr. 1½ is given by mouth one hour before operation to ward off toxic reactions to the anesthetic drug. Morphine sulfate, gr. ¼, (a smaller dose in the less vigorous patient) and scopolamine, gr. 1/300, is given subcutaneously one and a half hours before operation. Smaller doses are used in elderly or less vigorous patients.

Preliminary to sodium pentothal anesthesia: Morphine sulfate, grain 1/6, and atropine sulfate, grain 1/150, are usually given before sodium pentothal anesthesia. (*Clinical Abstracts*)

Indications and contraindications of spinal anesthesia—Philip D. Woodbridge, Surg., Clin. North America, *Lahey Clinic Number*, 20: 615-620, June 1940.

The indications and contraindications for spinal anesthesia are rarely absolute. They should be regarded as merely relative, and final decision must be based on the weighing of all factors involved.

Contraindications: Diseases of the central nervous system must be considered a contraindication largely because any increase in severity of the disease is likely to be attributed by the patient to the anesthesia. For similar reasons one may hesitate to use spinal anesthesia in a patient who has been led to fear post-anesthetic sequelae. Severe shock contraindicates spinal anesthesia, unless it is early and is thought to be induced by a reflex which will be broken by the anesthesia. Severe hemorrhage or a marked degree of anemia are also contraindications. Patients with cardiac decompensation or coronary disease present rather serious risks. Finally, the lack of an experienced anesthetist definitely contraindicates spinal anesthesia.

Indications: Spinal anesthesia is particularly indicated in the presence of disease of the respiratory tract. Another special indication is the presence of disease of the liver and kidneys. This, like the preceding, is merely the converse of the fact that other drugs are contraindicated rather than an indication for spinal anesthesia by its own right. Similarly, metabolic diseases, such as diabetes, are an indication for spinal anesthesia because it causes less disturbance of the metabolic processes than do the general anesthetics. The most frequent indication, however, is the need for relaxation in operations in the abdomen and on the perineum.

In patients who present serious risk, spinal anesthesia with procaine or metycaine was formerly considered to be contraindicated, but increasing experience with the newer drugs, pontocaine and nupercaine, has led to a revision of this view. At the Lahey Clinic spinal anesthesia is now used for practically all abdominal operations. (*Clinical Abstracts*)

The management of the patient under spinal anesthesia.—L. F. Sise, Surg. Clin. North America, *Lahey Clinic Number*, 20: 631-638, June 1940.

Careful attention to the supervising of spinal anesthesia is an important safety factor. The most

serious and rapidly occurring effects are apt to occur in the first half hour after injection. Therefore, while close attention should be given the patient at all times, it is during this period especially that attention should be unremitting. Supervision of the patient is an important and responsible task and should be assigned only to one qualified for it by training and experience.

Fall in blood pressure: This is an almost constant accompaniment of spinal anesthesia. A slight fall in pressure usually demands no treatment. It is a question however, just how far this drop may go without detriment to the patient. The blood pressure is a rather mechanical guide to treatment and is therefore not always reliable. A dulling of the intellect, with pallor, diminished pulse volume, shallow respiration and cool extremities, suggests need for supporting treatment. The least trace of cyanosis calls for instant treatment.

The most important effect of a marked fall in blood pressure is its depressing effect on the vital nerve centres. This may to some extent be mitigated by a slight Trendelenburg position when it will not cause an undue rise in the height of the anesthesia. For restoring the pressure vasopressor drugs may be used. The effect of epinephrine and neosynephrin is rapid and powerful, but short-lived. A mixture of 5 units of pitressin and 25 mg. of ephedrine produces a more sustained rise but the effect is not as rapid. If the need is urgent these drugs should be given intravenously though in much smaller doses.

Nausea and vomiting: In upper abdominal operations there is frequently an abrupt fall in blood pressure, diminished pulse, volume, pallor, and dyspnea, sometimes accompanied by nausea and vomiting. The cause of this phenomenon lies in certain surgical procedures rather than in the anesthesia itself. The treatment of this condition is similar to that of the surgically caused fall in blood pressure. When vomiting has once been started, the only thing which will stop it quickly is a general anesthetic.

Depressed or arrested respiration: This phenomenon may be caused either by paralysis of the muscles of respiration or by depression of the vital centres. The lesser degrees of inter-costal paralysis demand no treatment. Larger degrees produce anoxia and demand immediate treatment. As long as the breathing is of reasonable volume, simple application of oxygen is all that is necessary. Gentle pressure on the bag is of benefit when breathing becomes more seriously affected. Central failure of respiration is secondary to a severe fall in blood pressure and is a most serious complication. Oxygen must be supplied, but the essential treatment is that of the fall of blood pressure.

Restlessness: A sufficient amount of preliminary medication is a great help in preventing any generalized discomfort. If it does occur, it may be relieved either by a supplementary dose of medication or by resorting to a supplementary general anesthetic, usually one of the intravenous barbiturates. (*Clinical Abstracts*)

The absorption of vitamin C (l-ascorbic acid) from the intestinal tract, in health and disease.—Chester J. Farmer, M. A., Arthur F. Abt, M. D., and Herman Chinn, Ph. D. Quart. Bull. North-western U. M. S. 14: 114-119, Summer Quarter, 1940.

In health, absorption of vitamin C (ascorbic acid, from the intestinal tract is nearly complete. With ordinary oral intake, fecal excretion is usually not over 5 mgs. ascorbic acid in 24 hours. With massive oral doses (upto 1,000 mgs. per day) the fecal excretion is normally under 15 mgs. per day.

From experiments on rats and guinea pigs, vitamin C is believed to be absorbed by diffusion or osmosis. No evidence of phosphorylation as a requirement for absorption through the intestinal mucosa could be obtained.

No evidence of an enhanced fecal excretion accompanying high plasma levels could be obtained. The re-excretion of ascorbic acid from the blood into the intestine is considered unlikely, but cannot be entirely excluded from our present state of knowledge.

Certain types of bacteria have been cultured by special technic from human gastric contents and from guinea pig feces which will utilise ascorbic acid. Glucose is utilised in preference to ascorbic acid when it is simultaneously present.

Under certain abnormal conditions of the gastrointestinal tract, associated with abnormal bowel movement (catharsis, diarrhoea, ulcerative colitis) marked losses of orally administered vitamin C may occur. These conditions frequently are severe enough to decrease the plasma ascorbic acid level as well as the amount excreted into the urine. In such cases, as well as in all others with low plasma ascorbic acid levels, intravenous administration of large amounts (one gram daily) of ascorbic acid is an essential preoperative procedure. (*Clinical Abstracts*)

Primary sarcoma of the stomach: Report of three cases—L. K. Chont, M. D., *Radiology* 34: 714-720, June 1940.

Pre-operative diagnosis of a gastric sarcoma is extremely difficult, since there are no characteristic symptoms and signs to differentiate it from carcinoma.

The age incidence of gastric sarcoma is earlier than that of carcinoma, a gastric tumor in the first three decades of life being highly suggestive of a sarcoma. The duration of symptoms is usually shorter than that of carcinoma.

A large tumor with diminutive symptoms of malignancy is strongly suggestive of a sarcoma. Gastric sarcoma may simulate a peptic ulcer symptomatically.

Hemorrhage with recovery and recurrence without marked anaemia is a suggestive sign. Loss of weight is noted less frequently in sarcoma than in carcinoma.

Roentgenologically, a flat tumor with smooth borders, pedunculated growth, isolated filling defect on the greater curvature with deep indentation or with a crater shadow in it, and tumors on the greater curvature side of the fundus, are suggestive of sarcoma. Due to the radiosensitivity of sarcoma, an inoperable tumor may be rendered operable after a course of roentgen therapy and in some instances the tumors are curable by radiation alone.

Three cases, in which the diagnosis and localization of the primary lesions were verified by microscopic and x-ray examinations and by surgical exploration, are reported. One of these patients, three and one-half years of age, is probably one of the

youngest individuals having primary sarcoma of the stomach which has been recorded in literature. (*Clinical Abstracts*.)

Treatment of acute obstruction of the small intestine—Bentley P. Colcock, Surg. Clin. North America, *Lahey Clinic Number*, 20: 781-792, June 1940.

The successful treatment of acute intestinal obstruction depends on accurate diagnosis as to location and type of obstruction and the prompt and judicious use of the available therapeutic measures.

Intestinal suction: Actual intubation of the small intestine and the use of constant suction and a double lumen tube is one of the most important means of combating paralytic ileus. Likewise, in incomplete or chronic obstruction when strangulation can be ruled out, and in mechanical obstruction which develops immediately after laparotomy, gastro-intestinal suction represents the most valuable direct means of attack.

Extreme caution is required in the use of suction, unsupported by operation, in cases of acute, complete, mechanical obstruction. If there is any evidence of strangulation, suction unsupported by operation is contraindicated.

Operation for simple obstruction within 24 hours of the onset is accompanied by a low mortality. However, when immediate operation is contemplated, even a short period decompression may have an important bearing on the final outcome.

Administration of fluids: The liberal parenteral administration of a solution of sodium chloride and glucose is particularly important in the treatment of the vomiting associated with high intestinal obstruction and of the toxæmia associated with low intestinal obstruction.

Drugs and general medical care: Laxatives are contraindicated while enemas have little or no effect on small bowel distention. Local applications, such as poultices and stipes, and a semi-sitting position, may add to the patient's comfort. Intestinal stimulants, such as pitressin and prostigmin, must be used with caution. Good results in the relief of distention with concentrated oxygen have been reported in the literature. Lastly, transfusion is often of great value.

Surgery: When operation is indicated, it should be instituted promptly. This is particularly true when there is any evidence of strangulation. The simplest procedure which will relieve the situation will give the best results.

Finally, it should be emphasized again that, while intestinal intubation, suction, intravenous fluids and oxygen all have their place in the treatment of intestinal obstruction, when one is confronted with acute complete obstruction with possible strangulation, the basic treatment is immediate surgery. (*Clinical Abstracts*.)

Amebiasis: A cause of abdominal pain Massie, M. D., South. Surgeon, 9: 584-592, August 1940.

"Amebiasis" means infestation of the human intestine by the protozoon *Endamoeba histolytica*. It is not a tropical disease, indeed, the true incidence of amebiasis in this country is probably between 5 and 20 per cent. Infected persons may be placed in 5 classes: (1) Those with no symptoms; the so-called "carriers". (2) Those

with vague symptoms mostly referable to the gastro-intestinal tract and nervous system; the "neurasthenics". (3) Those with recurrent diarrhoea with or without passage of blood or mucus, with periods of comparatively good health between attacks. (4) The acute or chronic amebic dysentery, with prostration, fever or both, often with ulcerative colitis. (5) Those with symptoms unrelieved by specific treatment and antispasmodics. These obviously suffer from concurrent ailments which may be marked by finding the pathogenic ameba in the stools.

In a condition where the symptoms are so varied the diagnosis can never be made on history and physical findings. The sole criterion is the demonstrable presence of the *Endamoeba histolytica* in the stools. However, only those especially trained in this laboratory procedure should undertake the search for the ameba.

Analysis of a series of 52 cases indicates that 94% of the patients had abdominal pain of some sort, while less than half had ever had any diarrhoea. The pain was, in some, constant and aching, in others, colicky and often in the right lower quadrant. In many there was local tenderness over the "appendix area." Thirty-four per cent of the patients had operations of some sort, mostly unnecessary surgery. A plea is made therefore for more frequent examinations of the stools in all cases where the diagnosis is not clear but suggestive of neurasthenia or of "surgical" conditions.

A plan of treatment is outlined. It is emphasised that there is no quick cure for amebiasis: that emetine is a dangerous drug since its effective therapeutic range overlaps its toxic range; that there is no single drug which will cure all cases, but that by and large the several drugs are sure to bring relief in more than 90% of cases. Of all the drugs carbarsone introduced by Reed and his co-workers in 1932 is the most valuable. (*Clinical Abstracts*.)

The treatment of chronic ulcerative colitis with sulfanilamide.—E. N. Collins, M. D., F. A. C. P., Cleveland, Ohio, *Ann. Int. Med.*, 14: 55-61, July, 1940.

During the past 3 years, sulfanilamide and its derivatives, such as neoprontosil, and more recently, sulfapyridine, have been used in the treatment of chronic ulcerative colitis. An attempt is made to appraise the use of sulfanilamide in the treatment of a series of 33 cases. Kiefer's classification of cases was used. In the afebrile, non-toxic group sulfanilamide was considered valuable in 76%, or 10 of 13 cases, and was the only special form of treatment used. In a general appraisal in 26 cases, combining all groups in which the use of sulfanilamide might have been expected to prove significant, favourable responses were obtained in 15 cases, or 57%.

The author believes that sulfanilamide has a place in the treatment of chronic ulcerative colitis but that it should be considered an adjunct to the usual forms of treatment, not as a specific therapy.

In recent months, the use of sulfapyridine by mouth in as small a dosage as 0.5 gram (7½ grains) four times daily, over an initial period of 10 days to two weeks and then on alternate weeks in regular courses, has proved valuable. If a favourable response is noted, there is usually relief of symptoms soon after the drug is started and definite objective improvement in the proctoscopic findings may be noted within a period of a few weeks. (*Clinical Abstracts*.)

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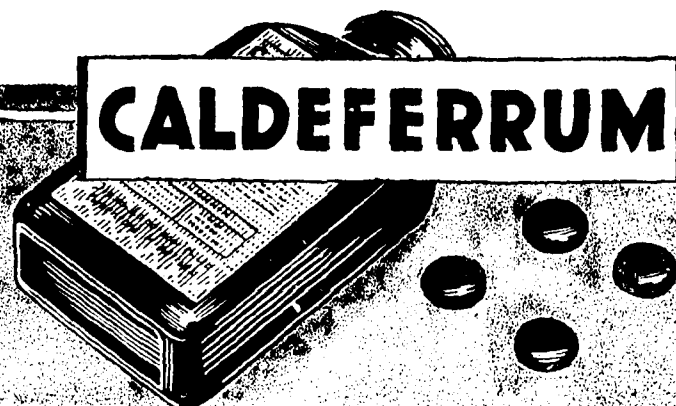


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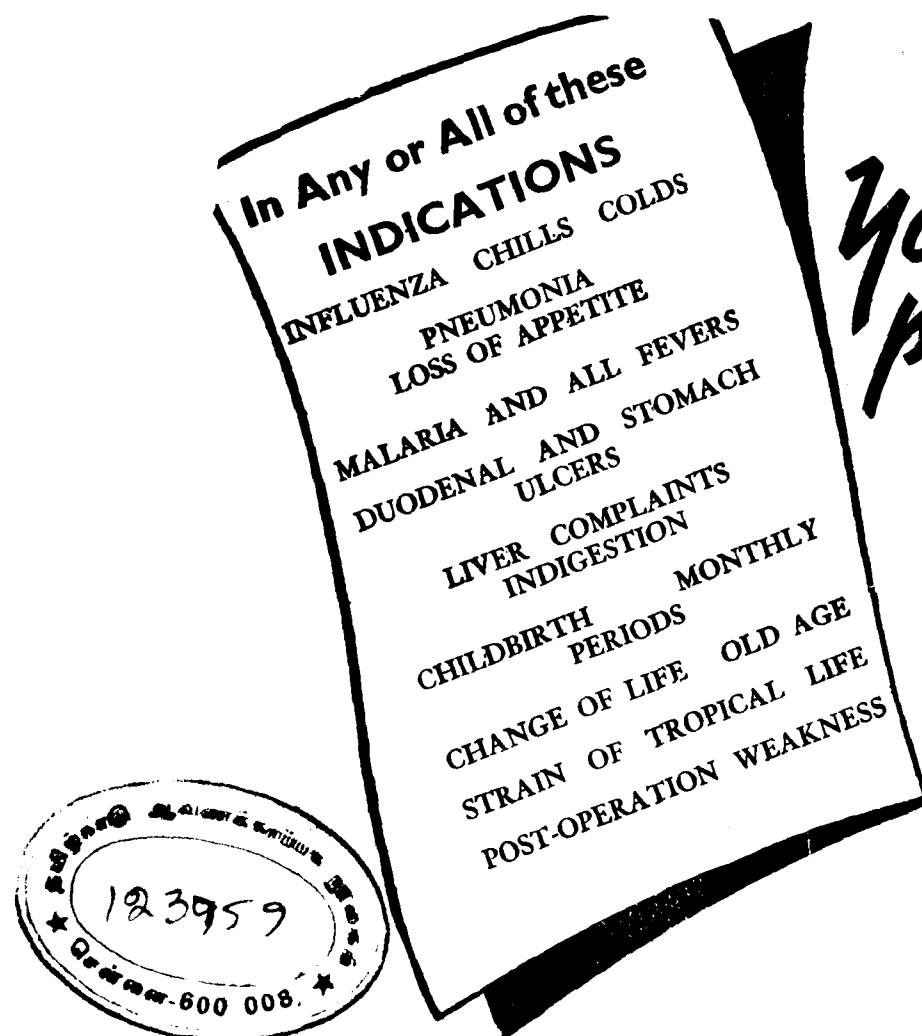
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The Original and Standard Emulsion of Petroleum

Angier's Emulsion

is made with petroleum specially purified for internal use. It is the original petroleum emulsion—the result of many years of careful research and experiment.

Influenza and Sequelæ.

The unique soothing properties of Angier's and its favourable influence upon assimilation and nutrition make it eminently useful both during and after influenza. It has proved most efficacious in relieving the catarrhal symptoms, whether tonsillar, bronchial or intestinal; also in combating the nervous depression and debility. After the attack, or when the patient's nutrition and vitality are at the lowest ebb, try the continued use of Angier's for convincing proof of its effects as a tonic and restorative.

Bronchitis, Sub-Acute and Chronic.

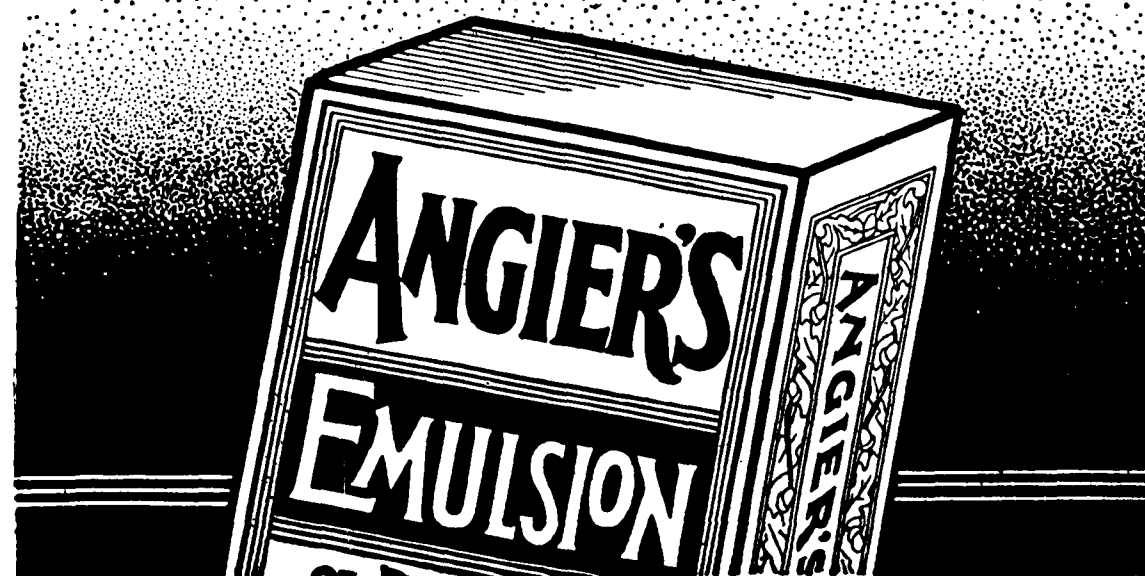
There is a vast amount of evidence of the most positive character proving the efficacy of Angier's in sub-acute and chronic bronchitis. It not only relieves the cough, facilitates expectoration, and allays inflammation, but it likewise improves nutrition and effectually overcomes the constitutional debility so frequently associated with these cases.

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of a catarrhal, fermentative, ulcerative or tubercular nature, Angier's is particularly useful. It exercises sedative, demulcent, lubricant effects throughout the entire intestinal canal, and it restores tone to all the digestive functions. Moreover, it offers the very best vehicle for the administration of astringents and antiseptics (bismuth, salol, &c.). The emulsion may be administered undiluted or in any desired vehicle.

Free Samples to the Medical Profession.

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