

Indian Medical Journal

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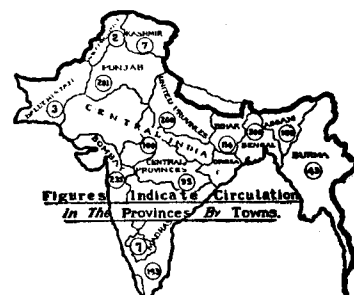
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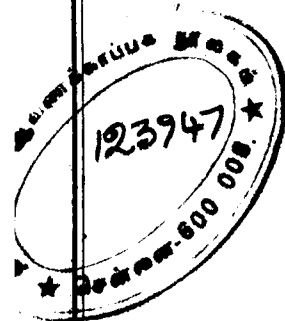


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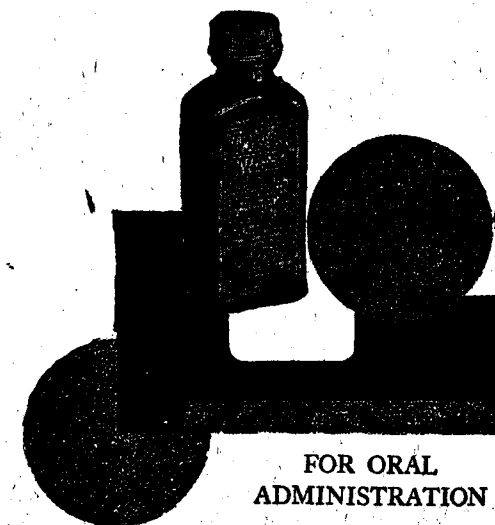
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The Incidence of Hæmolytic Streptococci in Puerperal Fever

• Lt.-Col. S. N. Hayes, F. R. C. S., F. R. C. O. G., I. M. S., Medical Superintendent, Lady Willingdon Hospital, Lahore and Dr. Balbir Singh, M.B., B.S.

Hingston and Mudaliar (1927) investigating uterine and vaginal swabs from 120 cases of puerperal fever, showed that in 64.2% of cases streptococci were present, out of which 85.1% were of the hæmolytic variety. No group classification was given. Since that time no work of importance has been done on the bacteriology of the genital tract in this country, a surprising fact when it will be generally accepted that the morbidity rate in most maternity hospitals is higher than that of the West.

It is now accepted that of the different organisms concerned in the etiology of puerperal sepsis *B. Hæmolytic Streptococcus* is the most important. (Fitzgibbon and Biggar 1935; Colebrook, L. 1926; Kinlock 1928; Colebrook Dora C 1935 and others.)

It was shown that hæmolytic streptococci could be classified into groups (Lancefield 1933, Edwards 1934, Lancefield and Hare 1935) and that the strains which give rise to severe symptoms in puerperal fever belong to Group 'A'. Although strains other than those of group 'A' are found in the genital tract and other regions, it was shown that they were as a rule pure saprophytes (Hare 1935).

The group 'A' hæmolytic streptococcus has been proved beyond doubt to be a highly virulent and dangerous organism and can be truly regarded as the public enemy No. 1 of midwifery.

Colebrook L. (1936) estimates that the actual number of deaths per annum in England and Wales which are attributable to puerperal infection by the hæmolytic streptococcus is about 1,200-1,500; and the number of serious non-fatal illness due to infection, at least 6,000 or 7,000. The figures for India with its 300,000,000 inhabitants and its primitive system of domiciliary midwifery have not yet been calculated, but must be of enormous proportions.

The practical application of the experimental work so ably carried out by bacteriologists does not appear to be appreciated by all clinicians dealing with midwifery cases and can be summed up as follows:—

1. The group 'A' hæmolytic streptococci are highly virulent, can produce symptoms of a severe and fatal type, are responsible for the majority of deaths due to puerperal sepsis and are of exogenous origin. When found in the vagina they have been placed there by some means or other.

2. Other organisms such as anaerobic streptococci and *S. faecalis* are frequently found in the vagina of pregnant and post-partum women (they can of course also be placed there), but except under certain conditions such as trauma of the genital tract cause no or mild symptoms (Colebrook L. 1936).

3. The present method of election in treating sepsis and/or fever in the puerperium is by the administration of sulphonamides, which are stated to be particularly effective in hæmolytic streptococcal infections.

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It is obvious from the above that if a clinician does not obtain an accurate bacteriological report on his cases of puerperal fever, he will not only be under the suspicion (which he usually is) of having infected the case, but will be in the position of having to treat the case empirically. Also an accurate bacteriological report considerably assists prognosis.

Colebrook and Fry have repeatedly stated that puerperal sepsis is a bacteriological disease and when this fact is appreciated by clinicians and cases are treated as such, we venture to prophesy considerable improvements in results.

In April 1938 an investigation framed by the Indian Research Fund Association into the bacteriology of the genital tract of pregnant women during labour and the puerperium was commenced at the above hospital and carried on for 6 months, during which time work was concentrated in the isolation and identification of hæmolytic streptococci from the cervix, vagina and blood.

Work on anaerobic streptococci was also commenced but no positive information was recorded. As this organism is usually associated with infections secondary to trauma there is an abundant field for research awaiting the investigator.

DETAILS OF EXAMINATIONS

	Total number of cases swabbed.	Positive for Beta Hemolytic Streptococci		Negative Hemolysin Test
		Negative for Beta Hemolytic Streptococci	Positive Hemolysin Test	
1. Ante-Natal:—				
(a) Vaginal & Cervix	113	110	2(1.76%)	1
(b) Throat	101	95	5(5%)	1
2. During Labour:—				
(a) Vaginal & Cervix	207	200	6(2.89%)	1
(b) Throat	151	143	7(4.63%)	1
4. Post-Natal Pyrexia:—				
(a) Vaginal & Cervix	107	63	40(37.38%)	4
(b) Throat	47	40	2(4.25%)	5
Staff & Students:—				
Throat	70	65	5(7.14%)	—

The results of the examination from the vagina and cervix are of interest in that the incidence of hemolytic streptococcal infections closely approximates to that of Western countries.

GROUPING

Grouping was carried out at the Central Research Institute, Kasauli, through the courtesy of Col. J. Taylor, C.I.E., I. M. S., and with the following results.

CASES.	Group 'A'	Group 'B'	Group 'C'
Vagina & Cervix	31 (21.67%)	1 (0.82%)	9 (29%).

The incidence of hemolytic streptococci Group 'A' in the pyrexial cases examined was 19.6%.

BLOOD CULTURES

The blood of 67 cases of pyrexia was examined with the following results:—

B. H. Streptococci Group 'A'	— 3
Ditto " 'C'	— 1
Ditto not grouped	— 2
Ditto Gas forming	
Bacillus of	
Anaerobic Group	
(Not identified)	— 1
Negative	... — 60

TECHNIQUE FOR TAKING SWAB FROM CERVIX & VAGINA.

(1) Metallic swab sticks filled into cotton wool stoppered test tubes were sterilized at 140°C for 8 hours.

(2) In all cases the patient was placed in Simm's position and a sterilized vaginal speculum was passed and the cervix identified. The cervix and/or vagina were then swabbed.

This technique is unnecessary and it is sufficient to place the patient on her back with the legs well drawn up. The introitus is then opened with the finger and thumb of the left hand. The swab stick is then passed into the

Notes on the Value of M & B 693, particularly as an Adjunct to other Methods of Treatment in Pneumonia *

● A. T. Ray, Assistant Medical Officer,
Deohall T. E., Hoogrijan, Assam
and

S. C. Dutta, Assistant Medical Officer,
Itakhooli T. E.

INTRODUCTION

Pneumonia is so commonly met with in tea estate practice and bears such an unenviable reputation as a killing disease that no excuse is needed for further discussion of its treatment, especially so as we propose describing a method of treatment which, to the best of our knowledge, has not been described or used elsewhere. For the last two years we have been using as a routine for our pneumonia

* Read in the Scientific meeting of Tingri Valley Branch, A. I. M. L. A. on 24-9-39.

centre of the vagina and as high as possible into the posterior fornix rotated once or twice and withdrawn.

Media are then plated immediately or within half an hour.

SUMMARY

(1) In 107 cases of post-natal pyrexia B. hemolytic streptococci were isolated on 40 occasions from the vagina giving an incidence of 37.38%; of these 21 belonged to Group 'A', an incidence of 19.6% of the total cases examined.

(2) The importance to clinicians of identifying Group 'A' H. Streptococci is indicated.

(3) A plea is made for continuation of the above work and the publication of combined bacteriological and clinical Records of treatment.

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 and Hare 1935 *J. Exp. Med.* LXI, 396.

patients injections of S. U. P. 36 or Omnadin or Iodine in addition to the usual symptomatic treatment, in the belief that these substances have, in fact, given better results than symptomatic treatment alone. A full description of the technique employed and an evaluation of the results in a fairly large series of cases has been published by one of us (Dutta, 1939). It is apparent from these results, which we shall quote more fully later, that a certain group of cases fails to react even to a combined treatment with two or more of these preparations and that any additional therapeutic measure which would favourably influence this group would constitute an important advance in the treatment of pneumonia.

M & B 693 was first described by Whitby in 1938 and the first clinical trials in pneumonia were made by Evans and Gaisford in England, also in 1938. In such literature as is available to us the only reports from India on the use of this substance in pneumonia are by Chand, Taylor and Chitkara (1939) and Caplan (1939). Both these papers describe the results obtained from the treatment of pneumonia with M & B 693 only as compared with the results obtained from symptomatic treatment alone so that their results are not strictly comparable with ours, but in both the claim is made that a great reduction in the period of pyrexia was secured in addition to a highly suggestive lowering of the death rate. It would appear, therefore, that this drug is the additional factor needed to influence our more serious group.

Our first trials with M & B 693 were made on patients suffering from typical clinical pneumonia, to whom no other treatment, other than symptomatic, was given and the results were not highly encouraging. As will be seen from the table, the death rate was not improved and, in addition, our cases did not show the marked reduction in the pyrexial period which we had been led to expect. We therefore felt that there was no overwhelming evidence that the new drug had any marked superiority over our present methods of treatment for, at any rate, the great majority of cases. On the other hand, it might be of service in the more serious group which fail to respond to our usual methods of treatment. We then introduced a new system of treatment, giving every case either S. U. P. or Omnadin or Iodine as before but in any case where improvement was not apparent or the condition of the patient was deteriorating, discontinuing the original treatment and giving M & B 693 until the temperature

reached normal. With this method of administration it was not found necessary to continue the treatment longer as, up to the present, relapses have not occurred, presumably owing to a reinforcement effect of the two methods of treatment.

TECHNIQUE

General treatment consisted in absolute rest in bed on fluid diet with an alkaline diaphoretic and expectorant mixture, followed after a few days by a stimulant expectorant mixture. Emergencies such as cardiac failure etc., were dealt with on the usual lines.

In addition to the above all the cases were given one of the following:—

S. U. P. 36, Omnadin, intravenous Iodine or in certain cases a combination of two of these preparations. S. U. P. 36 was given 1 c.c. daily upto three consecutive days, Omnadin 2 c.c. daily upto four days and Iodine gr. $\frac{1}{2}$ or gr. 1 daily upto three days. The technique of administration of intravenous iodine was fully described in the paper above referred to (Dutta, *Loc Cit.*).

INDICATIONS FOR GIVING M & B 693

Where the treatment described above failed to improve the condition of the patient, M & B 693 therapy was commenced. The usual indications were:—

- (1) Worsening of the general condition
- (2) Increase in dyspnoea
- (3) Increase in pulse rate
- (4) Obstinate tympanitis

At Deohall six tablets of M & B 693 were given on the first day followed by four tablets daily until the temperature came down to normal.

At Itakhooli a bigger dose was used, twelve tablets being given on the first day and then eight tablets daily till temperature was normal.

Toxic symptoms described by the other authors quoted have been nausea, vomiting, cyanosis, rashes, and subnormal temperature. The last named has been the only one observed in our series and, it has occurred in practically all our cases.

We attribute this fact to the small amount of the drug which has been given.

RESULTS

Our series of cases is, unfortunately, small but the subject is so important that we are publishing our results now in the hope that other workers will try this method which has the great advantage from the point of view of tea estate practice that it is much cheaper than treatment with M & B 693 alone and that the small amount of the drug necessary makes toxic symptoms unlikely.

In the subjoined table will be found the relevant figures regarding mortality in each of the series quoted, together with the figures for all cases treated with S.U.P., Omnadin and Iodine on four estates between Jan. 1st and Aug. 31st of this year, and the corresponding figures for cases treated with M & B 693 on the same four estates.

TABLE

The mortality of pneumonia treated by different methods and by different authors.

Treatment	Author	Cases	Deaths	Percentage mortality.
Symptomatic	Chand <i>et al</i>	50	9	18.0
	Caplan	164	31	18.8
	Evans and Gaisford	100	27	27.0
	Chand <i>et al</i>	50	5	10.0
	Caplan	100	5	5.0
M & B 693 only	Evans and Gaisford	100	8	8.0
	Present authors	10	1	10.0
	Dutta	98	10	10.2
S. U. P. etc. (single and combined)	Present authors	119	11	9.25
S. U. P. etc. (combined only)	Dutta	16	4	25.0
S. U. P. etc. with M & B 693	Present authors	18	1	5.5

DISCUSSION

The death rates in the two series of cases treated with S.U.P., Omnadin and Iodine are so nearly comparable as to encourage one to believe that the severity of the pneumonia in this district this year is reasonably similar to what it was during the period of the previous series. Included in that series are the sixteen grave cases which required treatment with more than one of these substances. They are, we think, comparable with the series of eighteen cases treated this year with one or other of these drugs followed by M & B. 693. It will be seen that a very satisfactory drop in the death rate has been obtained. Actually the difference is not quite statistically significant, though highly suggestive. Loewenthal and Wilson (1939) show that, for groups of this size, a difference in the number of deaths of five would be needed to establish a result as significant. The query may justifiably be raised as to why the death rate in the series treated with S.U.P. etc. without M & B 693 is a little higher, though that group, presumably, contains the less severe cases. We think that this is due to the fact that we did not start using M & B 693 until April so that the results for the first three months of the year are slightly loaded as compared with those for the succeeding five months.

Therapeutic Trials of a New Anthelmintic*

- K. P. Hare, M.B., B.S. (London),
Medical Officer
- H. C. Das, L.M.F. Assistant Medical Officer
and
- M. L. Banerjee, Pathologist, Keyhung Tea
Estate, Hoogrijan, Assam

INTRODUCTION

The change which has come over the political face of the world during the last few weeks has rendered much of the work described in this paper of no avail since the preparation tested is of German manufacture. However, as the composition of the preparation has been disclosed and may be adopted by other firms who will manufacture and market an identical product, we think it well advisable to publish our experiences with the preparation.

In an early paper from this district (Hare and Dutta) the properties of an ideal anthel-

* Read in the Scientific meeting of Tingri Valley Branch, A.I.M.L.A. on 24-9-39.

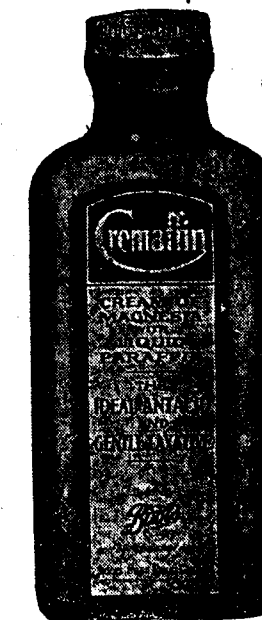
CONCLUSIONS

We feel that our clinical experience with M & B 693 and the figures we have produced justify us in claiming that the method of choice for treatment of pneumonia in tea estate practice is to commence treatment with either S.U.P. 36 or Omnadin or intravenous Iodine and, in such cases as do not show a satisfactory response, to follow it up with M & B 693, discontinuing the latter drug when the temperature comes down to normal. We consider that this method of treatment is economical and secures as great a reduction in the mortality from the disease as can be expected from giving every patient M & B 693 and that it has the advantage that the small amounts of M & B 693 used minimise the danger of toxic effects.

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mintic for mass treatment were formulated as follows:—

1. Lack of toxicity.
2. Reasonable palatability.
3. Ease of dispensing.
4. Cheapness.
5. Effectiveness in one dose.

It was pointed out that effectiveness could best be measured by the ability of the drug to render the stool completely egg-free. In that paper it was also shown that tetrachlorethylene more nearly fulfils the above requirements than does oil of chenopodium. No cases in that series were treated with any mixture of the two drugs as the results obtained by other workers with such mixtures were not greatly superior to their results with tetrachlorethylene alone and any mixture would suffer from the twin defects of the oil, namely, its nauseating taste and its toxicity in alcoholic patients. It is said that these two defects can be overcome by using Ascaridol, the active principle of oil of Chenopodium, instead of the oil itself in a mixture but such a procedure would entail sacrificing ease of dispensing as a necessity.

Messrs. Bayer Remedies Ltd. of Calcutta claim to have overcome these difficulties by the introduction of a new anthelmintic, Neopanthelmin, which they describe as "a faultless stable mixture of ascaridol and tetrachlorethylene in the proportion of one to six. The stability of the mixture is ensured by the purity of the single components and by the special method of production." The preparation is supplied in capsules, of which six constitute an adult dose and as a solution in castor oil of which 30 c.c. represents an adult dose. Doses for children are in proportion, according to age. The makers recommend that the whole calculated dose should be taken at one time in the morning on an empty stomach with a sufficient amount of castor oil or a saline aperient. When the solution is being used, it may or may not be necessary to give extra castor oil according to what dose of the preparation has been given.

TECHNIQUE

For the purpose of this investigation, we standardised the new preparation as the routine anthelmintic for a few weeks on this estate and treated seventy persons, men and women and children with it. The doses given were those recommended by the makers and allowed a 2/3 dose for children over 12 years, a 1/2 dose for children over 10 years, a 1/4 dose for children of 4 years and a 1/15 dose for a child of one year. All the patients were treated as

in-patients so that the effects of the preparation could be properly and fully observed.

In every case a sample of the stool was examined before treatment was given and another stool examination was carried out fourteen days later. We were not able to use the D.C.F. method of stool examination but used instead a flotation method which, in the hands of the senior author, has given results which are only very slightly inferior. The method is as follows:—

One c. c. of stool is thoroughly shaken up with 20 c. c. of a saturated solution of common salt in water and the mixture is poured into a small circular container one inch in diameter. On the surface of the mixture is floated a square cover-slip having 7/8 in. sides. Examination of the cover-slip is carried out with a 2/3 in. objective after thirty minutes.

The assessment of cure was made on the same basis as in the previous investigation as follows:—

No egg in the whole of cover-slip	... Absolute cure.
One, two or three eggs	... Partial cure.
Four to twenty eggs	... Improvement.
More than twenty eggs	... Not cured.

From the point of view of effectiveness in one dose we naturally attach importance only to absolute cures.

TOXICITY

No toxic symptoms were observed though the majority of patients experienced the sensation of mild intoxication usually associated with tetrachlorethylene therapy. One patient complained of griping pains in the abdomen which soon passed off. The makers, however, draw attention to the danger of alcohol being taken shortly before administration, a disadvantage apparently not shared by tetrachlorethylene.

PALATABILITY

No complaints were made regarding the taste of the new preparation.

EASE OF DISPENSING

The preparation is particularly easy to dispense, being given either alone or with a little added castor oil only.

COST

No information as to the market price of this preparation has been supplied by the makers.

EFFECTIVENESS IN ONE DOSE

The appended table shows the distribution of infections and the effect of a single dose of the drug.

Distribution of infection

Hookworm only	1 case
Ascaris only	1 case
Trichuris only	1 case
Hookworm and ascaris only	No case
Hookworm and Trichuris only	23 cases
Ascaris and Trichuris only	3 cases
Hookworm, Ascaris & Trichuris	41 cases.

Infection	Cases	Degree of cure	Number	Percentage.
Hookworm	65	Absolute cure	8	12.3
		Partial cure	11	16.9
		Improvement	20	30.8
		Not cured	26	40.00
Ascaris	45	Absolute cure	41	91.1
		Partial cure	1	2.2
		Improvement	0	—
		Not cured	3	6.7
Trichuria	68	Cured	2	2.9
		Not cured	66	97.1

Note.—In the previous paper, quoted above, the absolute cure rates for oil of Chenopodium in 30 minim doses and for Tetrachlorethylene in 4 c.c. doses were stated to be 4.8 per cent and 48.3 per cent. respectively.

The action of the new preparation on hookworm infections may be said to be more powerful than that of oil of Chenopodium alone but it is not so effective as is Tetrachlorethylene in 4 c. c. doses. Its action on roundworm infections is so marked as to be dramatic. It would certainly appear that this preparation is very definitely of value in the treatment of these infections. Its action on whipworm infections is, like nearly all other anthelmintics so far tested, almost nil. This parasite seems to be peculiarly resistant to all attempts to dislodge it.

CONCLUSIONS

To sum up, we consider that this product seems to be a useful anthelmintic, especially against Ascaris infections but that, within the limits of the present investigation, it does not appear to fulfil the requirements of an ideal anthelmintic for mass treatment so well as does Tetrachlorethylene alone in adequate doses.

ACKNOWLEDGMENT

We are indebted to Messrs. Bayer Remedies Ltd. of Calcutta for a generous free supply of Neo-panthelmin.

REFERENCE.

Hare K. P. & Dutta S. C.—*Ind. Med. Gaz.* LXIV, P. 198.

Differential Diagnosis of Sprue*

• Dr. K. Narayana Murthy, M. D., Hony. Physician, General Hospital, Madras

It is important to diagnose sprue from many other chronic diarrhoeas which simulate it. The insidious onset and protracted character of the disease with symptoms so variable in severity and type makes us in a large number of cases miss it and allow the disease to pass on to a chronic condition, when it could be very easily diagnosed. There is no difficulty to diagnose sprue if the case happens to come from an endemic area. Some time ago the disease was thought to be unknown in India while Ceylon, a neighbouring island, was found to be an endemic zone for sprue. But during the past few years several cases of typical sprue have been reported from various parts of India, the author from Madras Presidency, Sir Hamilton Fairley and Mac'kie from Bombay, and Acton and Knowles from Bengal. Now on all hands it is acknowledged that sprue does occur in India, which idea was not prevalent a decade ago.

Sprue is a peculiar disease which does not occur in all the tropical countries though it is a disease exclusively occurring in the tropics in a patchy geographical distribution and hence there is always the difficulty of diagnosing it from other chronic diarrhoeas which abound in the tropics. Its onset is found to occur in persons that have left the tropics many years ago. The signs and symptoms in such individuals are different and so escape identification.

In arriving at a diagnosis I always consider the history of the case as of prime importance. Diagnosis of a case of sprue in an European resident in tropics, particularly in an endemic area, where he had suffered from occasional attacks of diarrhoea, lassitude, and intermittent sore mouth is simple enough. But in an Indian it is not often the case. In most of our Indian cases there is some vague history of diarrhoea or dysentery preceding the onset of sprue. The early symptoms do not so much worry the patient, as the diarrhoea occurs in the early hours of the day and does not prevent him from looking after his routine work. Hence most of us miss to handle these early cases. Most of my cases were seen or diagnosed in either the second or the third phase of the disease.

It is always difficult to say which of the chronic diarrhoeas pass on to a clinical

* Extracts from a lecture delivered by the author at the clinical meeting of the Madras Branch of the A.I.M.L.A. during Oct. 1939.

condition of sprue. Yet one can say this much. It has been my contention that all neglected and improperly treated cases of Flexner and Morgan infection or amoebic infection of the gut are likely to develop the clinical condition of sprue. I am happy to note that Manson-Bahr's experience supports my finding, and he gathered a large amount of evidence of the close association between sprue and amoebic dysentery. The two diseases are often found to co-exist while on occasions sprue appears to be grafted on intestinal amoebiasis. In a series of cases in which the writer investigated this point, definite evidence of amoebiasis was obtained in 56 per cent of the cases in Flexner infection and in about 30 per cent of cases in amoebic infection of the gut.

The clinical diagnosis of sprue is to be based upon the following cardinal symptoms:—

1. Morning diarrhoea with frothy, copious, pasty, fermenting, clay stool, the colour of the stool in an Indian often being brown or greenish yellow partly due to less quantity of fat and presence of leuco-basis.
2. Intense meteorism especially of the lower abdomen.
3. Glazed, raw, red tongue with superficial erosions.
4. Progressive emaciation with a severe grade of anaemia but without temperature.
5. The disease is marked with remissions, infections, and exacerbations.

If a combination of these symptoms are found clinically, one can diagnose sprue very easily without any laboratory investigation.

The following investigations are however necessary to clinch the diagnosis:—

1. X-ray Examination after a barium meal
2. Agglutination test with the serum of the patient against Flexner and Morgan group of organisms.
3. Fractional test meal.
4. Estimation of total fat, neutral fat and fatty acids in the stool.
5. Bacteriological examination of the faeces for flexner, streptococci, Monilia and amoebae or amoebic cysts.

There are other laboratory investigations that have necessarily to be carried out to deter-

mine the prognosis, which are:— 1. A complete cytological examination of blood.

2. Van-den-Bergh's test.
3. Calcium content of blood serum.
4. Blood cholesterol.

The most important diseases from which sprue has to be diagnosed are: all chronic diarrhoeas occurring in the tropics. The most important are:—1. Hill diarrhoea 2. Low-country morning diarrhoea 3. Chronic dysentery 4. Ch. Pancreatitis 5. Coeliac disease 6. Certain flagellate diarrhoeas 7. Famine diarrhoea 8. A diarrhoea common in Indian women during puerperium called "Suthica" 9. A diarrhoea in young adult Indians often associated with pernicious anaemia called asthenic diarrhoea 10. Tubercular enteritis 11. Stomatitis 12. Mucous diarrhoea in infants 13. Steatorrhea and 14. Pellagra.

There are some other conditions, like fissure of the anus, tuberculosis of the lungs, chronic or mucous colitis, obstruction in the portal circulation producing diarrhoea due to the congestion of the intestinal wall brought about by cardiac or liver condition, nervous diarrhoea as we sometimes meet with during the crisis of loco-motor ataxy, amyloid disease of the intestines giving rise to a most intractable diarrhoea, senile diarrhoea occurring in persons over 60 or 70 years of age existing for years without emaciation or danger to life, mineral poisons especially arsenic and antimony causing persistent diarrhoea, gastrogenous diarrhoea occurring in cases of achylia gastrica even when it is not associated with pernicious anaemia, gastrocolic fistula and gastro-enterostomy occasionally producing persistent diarrhoea with great emaciation. And among the still rarer causes of persistent and chronic form of diarrhoea are hyper-thyroidism, Addison's disease, chronic renal disease, anaphylaxis, excessive tobacco smoking in susceptible persons, and lastly any exhaustive or wasting disease of any kind which may lead to a terminal form of diarrhoea. In all the above conditions, ulcers of the intestinal tract are not found and hence they do not come under the purview of a discussion in differential diagnosis of sprue from the above conditions. But all the same one has to remember that in these diseases we find a chronic form of diarrhoea which should not be mistaken for sprue. The other important conditions which one has to remember are cancer of the rectum or cancer at any place in the alimentary canal, ulcerative colitis and syphilitic ulceration of the bowel causing intractable diarrhoea.

THE Indian Medical Journal

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Hemp-Drug Addiction in India

The recent Memoir by Chopra and Chopra* on the present position of hemp-drug addiction in our country is a complete and authoritative contribution dealing with some of the salient aspects of the subject in a characteristically thorough manner usually associated with these authors.

Being a subject of great social and economic interest, we hope that this publication will attract the attention of the statesmen of our country and stimulate such legislation as would materially reduce, if not wholly eradicate, the incidence of hemp-drug addiction which, although not so extensive as alcohol habit, is yet prevalent to a degree that is dangerous to the morale and culture of our nation. The success that has attended the prohibition of alcohol, notably in Madras and Bombay, is a reminder to the further extension of the Prohibition Act to cover all the injurious and habit-forming drugs.

¹ Ind. Jour. Med. Res. Memoir, No. 39, July 1939.

The authors maintain that there is a definite reduction in recent times in the incidence of hemp-drug addiction owing to the Government control of hemp-cultivation. The consumption seems to have fallen from 15 lbs. per 1000 of population during 1912-13 to 4.24 lbs. during 1934-35. This is indeed heartening, but there is no reason why further legislation should not be introduced to prohibit totally the sale of hemp as in the case of alcohol.

The problem of hemp prohibition seems to our mind not so difficult as of alcohol and opium. The whole cultivation in India is entirely under the control of the Government. So also its distribution. Besides, the addicts are relatively less numerous than the other kinds of drug perverts. And what is more important, the weaning from hemp habit is comparatively easier than from opium or alcohol. The case for total prohibition of hemp consumption is therefore quite strong, because it is practicable and easy.

Hemp is consumed in three forms: *ganja*, *charas* and *bhang*. The former two are smoked, and the latter taken in the form of beverage. The physiological effects produced by them are similar, though they differ in degree. According to the authors, *ganja* is nearly four to five times more potent than *bhang*, and *charas* twice as strong as *ganja*. *Ganja* is commonly used in Bengal, Bombay, Madras, Behar and Orissa; *bhang* in Sind, Western Rajputana and western districts of Punjab and U. P.; and *charas* in the north-western parts of our country.

It is however consoling to learn from the memoir under review that the hemp drugs retain their activity only for one year, becoming actually inert after two years of storage, that small occasional doses do little harm and that there is no real connection between crime and this type of addiction.

But these observations should not lull us into a comfortable sense of security, and postpone the day of total prohibition of all species of intoxicants which are a menace to social solidarity and progress. It is, we consider, the duty of the organised profession to advise and help the provincial governments to complete their prohibition programme in entirety and in all its implications.

Quinine Preparations in the Market

Of the number of samples of quinine preparations tested at the Bio-Chemical Standardisation Laboratory, Calcutta, it was found that nearly 70 per cent. of them showed a deficiency of quinine content and more than 50 per

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Archiv f. Kinderheilkunde, Vol. 49.

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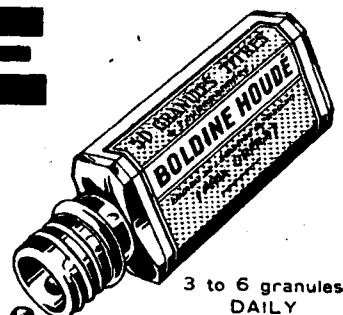
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cent much below the strength of the claims made on the labels of the containers. Nearly the same results were obtained with regard to stock quinine mixtures in Government hospitals. Of the latter only 16 per cent. were found to contain the stated strength of quinine sulphate.

This is certainly a dangerous position, particularly in a country where malaria claims the highest and heaviest mortality, and it has led to the erroneous conclusion that quinine fails to establish a large percentage of cure in malaria. This in turn has given rise to the craze for synthetic preparations like atebirin and plasmoquine, which though they serve a definite purpose in the process of cure are yet not at all likely to displace quinine in the regular treatment of malaria on both medical and economic grounds. The position of atebirin is still uncertain albeit of the great claims made on its behalf. Its effects on the nervous system have been rather alarming, and we have ourselves been frightened about them in not a few recent cases. Similar by-effects of this drug have been recorded in Indian medical literature. As for plasmoquine its usefulness is circumscribed to cases of prevention rather than of cure, but its cost is so prohibitive that we cannot even dream of its ever being available to the people in sufficient quantities at economic rates. Nor should we depend on these foreign preparations while we can produce our own quinine supplies sufficient to meet our needs. The present war should teach us a lesson that undue dependence on foreign medical preparations would leave us miserable as regards medical supplies in times of emergencies as we are facing to-day.

With regard to quinine supplies we are really in a quandry. The cinchona policy of the Government of India has been one of playing to the tunes of Java clique of world's quinine monopoly. When we say this we are not unaware of the recent efforts of the Indian Government to explore the possibilities of extended cultivation of cinchona in our country, but the attempts seem to be tardy and half-hearted. It has been proved beyond doubt that, given a right policy, our country can be self-sufficient in regard to quinine supplies and our people can get it at a much cheaper rate than now. Nor have the Local Governments taken necessary steps against profiteering of quinine by unscrupulous merchants who market substandard preparations. This kind of profiteering has been going on even during peace times, and pointed attention to this evil has been now and again

brought into light by our contemporary, the *Indian Medical Gazette* and later forcibly forced by the Drugs Enquiry Committee. Yet nobody seems to pay any attention to this subject. Will the Provincial Governments pay some heed to what is rightly termed as quinine fraud by the *Indian Medical Gazette*?, and prevent this fraud from being perpetrated on suffering humanity by unscrupulous manufacturers?

We regret to find that even the stock quinine mixtures prepared in the hospitals are much below the required or the stated strength. This again is not a new discovery. Some 20 years ago, Sir John Megaw opened our eyes to this anomaly. But unlike our contemporary, the *Indian Medical Gazette*, we are not disposed to attribute this to the carelessness of the dispenser, and this too obedient creature should not be blamed for what is really the neglect of the duty of the medical officer in charge of the dispensary to check or supervise the dispenser's work. It is often times the case that the strength of the hospital quinine mixture depends on the hospital stock of quinine: the greater the number of patients the lesser the dose.

Quinine supply and quinine preparations must be controlled by the Government if it is in earnest to reduce the incidence of and mortality from malaria in our country. This is an elementary duty which they should not neglect under the excuse of political pre-occupations.

CURRENT COMMENTS

Fumigation of Rat Burrows

Health Bulletin No. 21 of the Government of India gives us a brief account of the existing practice to deal with plague outbreaks by such measures as evacuation, inoculation and rat destruction by trapping and poison-baiting. While all these are indispensable steps, it however stresses on the greater need to destroy both rats and fleas at one time, instead of killing the rats and allowing the fleas to infect the population. It therefore suggests fumigation of all rat-burrows in endemic and epidemic areas with hydrogen cyanide gas, and bases its suggestion on the experience gained in the Cumbum valley experiments. Recent work in Madras province indicates that to maintain a steady low level of rat population in villages, fumigation with HCN gas should

2 October 1939, P. 623.

be repeated once in three months and that if this is continued for about three years in succession there might be a possibility of completely eradicating plague from endemic foci. We think this is a very practicable and handy method of plague prevention and should be adopted in all plague areas of our country. Fleas are now definitely proved to be the links in plague transmission, and the possibility of effectively destroying the plague infected fleas should fill us with the hope of total eradication of at least one of the chief epidemic diseases of our country. Incidence of plague is of course less than that of small-pox and cholera, but the fright it causes among the people by quick mortality makes it the most dreaded of epidemic diseases. No price is too high to pay if only our people are saved from the fear of plague. Persistent and periodical fumigation of rat-burrows with HCN gas offers one of the best means of plague prevention.

Robertson Medical School

We understand that the C. P. Government has made inter-science qualification as the minimum necessary for admission into the medical school of this province, and fixed $3\frac{1}{2}$ years curriculum for the completion of medical studies. This is a reform which is neither fish nor flesh. This step is said to have been undertaken in compliance with the recommendations made by the Government of India Conference on Medical School Education, 1938. The danger and futility of such partial reforms have been strongly pointed out at the conference by the Editor of this *Journal* who was there as the Association's representative. He said:

"In Madras the medical school course was raised to 5 years in 1932 but the general standard of admission was not raised. In Bombay, they have altered the standard but not the course. Sir, see how the river of progress is flowing. Here it is a question of five years and no standard: there it is a question of standard but not the question of five years.....Sir, my Association is not going to subject itself to this kind of treatment. Therefore, I say sir, that time has now come for the medical schools to be wholly reformed and to possess an uniform standard which should be of the university type....."

What we apprehended is now happening. This is not in the true interest of the development of medical education in a province where there is only one medical educational institution. It is certainly not too late to alter the course of the reforms in the right direction, and we hope that the Minister of Health would attend to this important question without leaving the matter to be settled by his

subordinates in the manner they are doing now.

Medical Education in Assam

The Government of Assam have, in its G.O. dated 24th August 1939, appointed a committee of 13 members to enquire into the possibility of the raising of the standard of medical education at the Berry-White Medical School (Dibrugarh) and of the opening of another School at Sylhet. We are glad and gratified to note that Drs. Ghanashyam Das and B. B. Sen Gupta are appointed by the Government as members of this Committee to represent the views of the Assam Branch of the All-India Medical Licentiate's Association. We think this is the first provincial Government under the 1935 Act to invite spontaneously the medical licentiate representatives to join in a deliberation of this kind, and we are quite certain that our representatives would discharge their duties with much credit. It is hoped that this Committee would come to only one conclusion, viz., medical education at Assam should be of a standard in no way inferior to that of the Calcutta or other Indian universities.

One of the terms of reference to this Committee is the possibility of opening another medical school at Sylhet. We wish that this reference might have been avoided by the Government for the simple reason of doing one thing at a time and doing it well. We know that the finances of Assam are too poor to afford two medical schools of a standard type, and it would satisfy the profession and the public of Assam if the Government concentrate their attention on the improvements in the Berry-White Medical School at Dibrugarh. We are however quite confident that the present Government of Assam would finally give up the idea of a second medical school in their province and work, instead, for improving the existing school to such an extent as it would gain the recognition of the Calcutta University and form a nucleus for a medical faculty of Assam university which must come to exist sooner or later, although we understand that the latter has been rejected by the Assam Governor recently.

Recent I. M. A. Publications

We heartily congratulate the Central Council of the Indian Medical Association in publishing two of the most important and useful books of the season, viz., AIR RAID PRECAUTION, and HOUSEHOLDER'S GUIDE and TREATMENT AND PREVENTION OF POISON GAS. It is a

(Continued at foot of next page)

POST GRADUATE ARTICLE

Pulmonary Tuberculosis

(Concluded)

• Dr. Samuel Ram Singh, M. S. M. F. (Pb.), D. T. M. (Cal.), Willingdon Hospital, New Delhi

(5)

Prevention

Tuberculosis is a disease which can be prevented in a community which is intelligent and sensible. Since there is no specific remedy against tuberculosis the prime duty of all social workers and medical men is to concentrate more on the preventive aspect of the disease and to seek such remedies as would give the necessary protection against as well as resistance to the disease by the human body. It is essentially a disease of civilization, of over-crowding in towns and of bad hygienic conditions. Poverty seems to have become a part and parcel of our national life and it adds its own quota to the causation of disease. Therefore the whole question is one of reorganising the country and the people on sound economic and hygienic conditions.

25 hundred years ago Hippocrates said: "The spitting of pus follows the spitting of blood, consumption follows the spitting of this and death follows consumption." In second century Galen suspected the danger of contact and warned against it. In 19th century Villemin through inoculation justified Galen's suspicion, and in 1882 Koch proved the presence of the infecting micro-organisms in the sputum. Evidently the dissemination of organisms is in direct proportion to the quantity of sputum produced by those suffering from open pulmonary tuberculosis. If each case of advanced tuberculosis spits 2-4 oz. of sputum daily several maunds of sputum is thrown out in a day to scatter the infection. This

(Continued from previous page)

step in the right direction, and a kind of help which the profession and the public have been expecting from the Association. Written in a simple language, clear in their exposition and directions, and priced so low as to be even within the reach of the poor, these two publications are obviously a labour of love undertaken by the Association on behalf of our country. We have gone through the books carefully and are amazed at the compactness of description without sacrifice of essential details. We have no hesitation in commending these books to our readers and they can be obtained from Indian Medical Association, 12 Samaraya Mansions, Calcutta.

is an important factor to tackle in the prevention of tuberculosis, namely, to prohibit spitting in the streets.

As already pointed out, pulmonary tuberculosis in India is a very wide and complicated problem. The preventive measures should deal both with the seed and the soil. We must aim at controlling the spread of the infection and also raising the body resistance of the community. The ideal means of preventing infection is to isolate under proper control every one who is infected. But in a country of such a low economic condition and with over 2 millions of infectious cases isolation is absolutely impracticable. Education and propaganda are the next best course and are necessary to make the people understand about the nature of the disease and the ways and means by which they could avoid it. Health education should be made a part of the school curriculum.

Prophylaxis against tuberculosis is not a problem of infection, because everyone who has past the first 15 years of life, specially in cities, is infected. The real problem is the prevention of the disease. Lack of appreciation of distinction between infection and disease is one of the chief causes of inefficacy and failure of the campaign against tuberculosis. Two facts must be appreciated: (1) Chronic phthisis rarely occurs soon after a primary infection. If it does, it is acute and fatal. (2) Infection with tuberculosis, whether it causes disease or not, renders the body immune against further exogenous infection with the same virus. The manifestation of the disease in adults are attributed to infection during childhood, just as the tertiary manifestations of syphilis are late results of original infection years ago. Normal resisting powers having failed at the age of wear and tear in the struggle for existence flare up the dormant organisms to action and endogenous re-infection occurs, though exogenous infection may be possible.

In checking the disease and preventing the infection, tuberculosis clinics are most important links in the anti-tuberculosis campaign, but in our country the money spent on the clinics seems to be out of all proportion to the benefit derived from them. The chief reason perhaps is that they are all in towns without adequate facilities for hospital treatment of the cases which are not fit for ambulant treatment. Clinics must work in connection with hospitals and sanatoria where patients can have opportunity of building up their resistance and learning how to regulate life. Colonies form the last link after the hospitals or sanatoria for living a regulated life for the rest of the period. Thus the hospitals and sanatoria are not of much use unless there is co-operation from the clinics on the one hand and from colonies on the other.

Public interest in India is greatly aroused, especially by the untiring and noble efforts of Her Excellency Lady Linlithgow, about the tuberculosis problem, and an increasing demand is being made for a definite tuberculosis programme

for the country. As expected, the fund that has been started has come to a fair amount which will be available for the tuberculosis work. It will be a pity if the pressure of public opinion which demands that something should be done on a large scale will lead to an inconsiderate and unnecessary large outlay of expenditure in different ways before a thorough and scientific investigation is made to show what really is to be done and the way in which it must be done under the conditions that exist in the country. Dr. Frimdot-Moller outlines the tuberculosis policy for India as under, and it appears to be a very sound one:

(1) There should be a Central Research Body and its branches in all provinces to co-ordinate and regulate their findings.

(2) Doctors specially trained and wholly engaging themselves in this work without any private practice should be employed.

(3) There should be provision for facilities of modern and efficient treatment along cheap lines using buildings of very light construction in the form of temporary hospital camps, sanatoria and colonies not too different from buildings found under ordinary Indian conditions and not requiring huge capital outlay.

(4) The Central Body and its branches should choose special areas both urban and rural and conduct their investigation on two main lines: (a) survey of the incidence, both of infection and active disease, (b) the study of the methods of combating the disease by emphasising the environments, race, caste, creeds, traditions, customs, habits and various other factors in the daily life of the people and the part they play in the spread of the disease. Also they must emphasise the methods of treatment and isolation best suited to the Indian conditions.

In the campaign against tuberculosis the after-care work is as important as or even more important than the early preventive measures against infection and cure of the disease. Education and propaganda are necessary. Maintenance of sanatoria and colonies for adolescents to help them to lead a regulated life is a crying need in our country.

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FOREIGN MEDICAL NEWS

Our London Letter

(From Our Own Correspondent)

The Minister of Health, Mr. Walter Elliot, has issued in August of this year the annual report of his department for the year 1938-39, and according to him 'there is no faltering in the upward tendency of every recent year' which in plain words mean that the year under review shows all-round improvement in the health of the nation. Low figure for infantile mortality (53 per 1000) and maternal mortality (297 deaths per 1000 births) are recorded. The number of deaths from cancer in 1938 is estimated provisionally at 68,600 as compared with 66,991 in the previous year. But the report hopes that with the passing of the Cancer Act 1939 there will be ultimate reduction in mortality from cancer as the Act imposes obligations for free and effective treatment in County Councils and Boroughs. Mention is also made of the Food and Drugs Act which consolidates for the first time the statutory laws in respect of purity of drugs and food. It is also recorded that 4 million houses were built and that million persons were cleared from the slums since the slum-clearance campaign in 1933. The total expenditure of the department was 148.5 million pounds, out of which 7.85 millions was consumed by the Health Insurance and contributory pension schemes. Three deaths occurred from small-pox and 163 from typhoid. Cases of acute poliomyelitis and diphtheria showed an increased incidence. The total number of insured persons under the National Health Insurance Act was 17.119 millions, showing an increase by 21% as compared to the previous year. This year's annual report, unlike in previous years, contain an excellent chapter on Civil Defence dealing with evacuation and emergency medical services.

SYMPTOMATIC HEADACHE

Speaking at the Aberdeen Session of the B.M.A. Prof. Henry Cohen suggested classifying the causes of pains in the head on an anatomical basis. Headache is incapable of quantitative assessment; we are therefore dependent on the patient's description of its site, duration, character, and intensity. Hence the patient's account of headache is often of little diagnostic value. Only a small number of those suffering from headache were victims of intracranial disease. Headache is the dominant symptom in "expanding lesions," meningeal irritation and diseases of the cerebral arteries. In adults, the more rapid the development and the earlier and more severe the interference with the circulation of the cerebrospinal fluid, the more intense is the associated headache. The dull, throbbing or bursting, splitting pain, aggravated by coughing, stooping, or straining, is associated with "expanding lesions." Pain beginning in the back of the head and radiating to the temples and frontal regions, accompanied by nuchal rigidity, is associated with meningeal irritation. The migrainous type of pain is commonest in vascular lesions. Yet all these types of headache have occurred in

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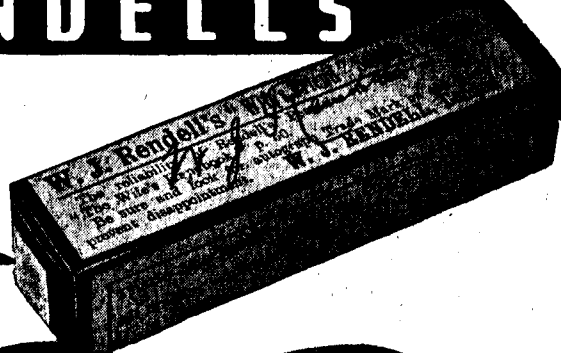
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the absence of demonstrable cerebral pathology, suggesting that the essential mechanisms are functional and not dependent on an irreversible structural change. Intracranial origin is suggested not by a description of the headache but by associated signs and symptoms. The main factor in the mechanism of the pain is cerebral anoxia; benefit is frequently derived from the administration of oxygen.

Dr. Desmond Curran (London) said that the diagnosis of functional headaches, which were now recognised to be so common, was apt only to be reached by a process of exclusion, on the principle that it was first necessary to eliminate all possible physical causes. The ruthless application of this principle could have the most unfortunate consequences; positive features should supplement the negative approach to the diagnosis.

The fallacies inherent in the classical antithesis between "functional" and "organic" might lead to the erroneous conclusion that a psychiatric problem was synonymous with a psychogenic problem. The head was not only something which was physically experienced but it was also something psychologically experienced as the place where our ego is localised. It was therefore easy to understand how any threat to the ego or personality was experienced subjectively as a head discomfort or a headache; and hence why head discomforts or headache should be such a frequent symptom in mental disorder.

The characteristic thing about a "functional" headache was its quality of closeness to as opposed to remoteness from the personality; it was not so much a typically sensory perception as an unpleasant experience with a special personal significance. This led to the rather special proprietary attitude of "my headache." The other characteristic features of the functional headache were the selective disturbance of function and its variability in accordance with psychological rather than physical events.

Much help might also be obtained from the study of the past history and personality of the individual concerned, and the presence of other symptoms of some psychiatric syndrome. (*Lancet*.)

EMERGENCY MEDICAL SERVICES

Mr. Parker asked the Minister of Health whether he was aware that there was great discontent in the emergency medical services arising out of the fact that many nurses, medical students, doctors and others were expected to give their services voluntarily or for purely nominal remuneration; and whether he would examine and rectify these grievances—Mr. Elliot replied: No, Sir, I am not aware of any such discontent. We have in this country a great tradition of voluntary service to those in need, and those who give such service, whether in peace or in war, are rightly proud of it. Standard rates of payments have been arranged for doctors, nurses and nursing auxiliaries employed wholtime in the service. With regard to medical students, I understand that in general they are most willing to assist in the treatment of casual-

ties, and I cannot believe that they wish to profit by the circumstances of the war.

Replying further to Mr. Parker, Mr. Elliot said that he would undertake to investigate any grievances brought forward.

Our American Letter

(From Our New York Correspondent.)

BLOOD PRESSURE READINGS

A recent survey revealed a serious lack of agreement among physicians as to the correct technique for taking and interpreting the blood pressure. Experiments with multiaural stethoscopes demonstrated no improvement in this situation. The committees for the standardization of methods of blood pressure readings appointed by the American Heart Association and by the Cardiac Society of Great Britain and Ireland jointly recommend a certain procedure as the standard method for taking and recording blood pressure readings in man. Following are some of their points.

Mercurial blood pressure equipment is referred by British committee. The patient should be comfortably seated with the arms slightly flexed and the whole forearm supported at the heart level on a smooth surface. A standard sized cuff containing a rubber bag from 12 to 13 cm. in width should be used. In all cases palpation should be used as a check on auscultatory readings. The pressure in the cuff should be quickly increased in steps of 10 mm. mercury until the radial pulse ceases and then allowed to fall rapidly. If the radial pulse is felt at a higher level than that at which the auscultatory sound is heard, the palpatory reading should be accepted as the systolic pressure; otherwise the auscultatory reading should be accepted.

The stethoscope should be placed over the previously palpated brachial artery in the antecubital space, not in contact with the cuff. With continued deflation of the cuff, the point at which the sounds suddenly become dull and muffled should be known as the diastolic pressure. If there is a difference between that point and the level at which the sounds completely disappear, the American committee recommends that the latter reading should be regarded also as the diastolic pressure. This should then be recorded in the following form: RT (or LT) 140 80-70 or 140 70-0. If these two levels are identical, the blood pressure should be recorded as follows: 140 70-70. The cuff should be completely deflated before any further determinations are made. The British committee believes that except in aortic regurgitation, it is nearly always possible to decide the point at which the change comes and this is the only reading that should be recorded. It is thought inadvisable at this time to make recommendations regarding automatically recording blood pressure equipment.

NEW DRUG LEGISLATION

On June 25, 1939, the new Federal Food, Drug and Cosmetic Act passed in 1938 by the Congress

went into practically full effect. The new law is the first substantial revision of the Food and Drug Act of 1906. The intent of the law is fuller protection of public health against fraudulent and dangerous drugs and cosmetics. The effect of the law will probably be a decline in self-medication.

VENTRICULOSCOPY

Every year 2,000 hydrocephalic children are born in the United States. Each of the four ventricles of the brain contains choroid plexus; the function of which is to generate the cerebrospinal fluid. Haller and Magendie believed that the fluid was formed by the leptomeninges, and the evidence that the vascular choroid plexuses are the principal structures concerned, was not obtained until quite recently. If the choroid plexuses produce abnormal quantities of fluid, or if the brain fails to absorb the fluid, hydrocephalus occurs.

Dr. Scarff, Neurological Institute, New York, recently made a successful operation on hydrocephalic child. He destroyed the choroid plexus in her first two ventricles, thus diminishing the fluid supply to her brain; the third and fourth ventricle produce only minute quantities of fluid. After removing a small plug of bone from the skull, he inserted a ventriculoscope. He led it through the grey matter down to one of the ventricles and was able to see about two inches of choroid plexus. With an electric wire he cauterized the tissue as far as he could reach it. Within a half hour he had cauterized the choroid plexus in both ventricles. The plug of bone was inserted again. The baby was well after short time, the hydrocephalus began to sink in three days after operation. Dr. Tracy Jackson Putnam, famed Harvard neurologist, claims that hydrocephalic babies of normal intelligence whom he had operated upon with a similar method grew up to be just as bright as normal children.

DR. WILLIAM J. MAYO IS DEAD TOO

Dr. William James Mayo has survived his brother, Dr. Charlie, his lifelong friend and partner, by only two months. Their careers and their successes in the world-famous Mayo Clinic in Rochester, Minnesota, were inseparable. Their passing from this life so closely together was no doubt as they themselves might have wished it. Dr. W. Mayo was the elder of the brothers, born in Le Sueur, Minn., 1861, and as father and brother a famous surgeon. It is a strange coincidence that he succumbed to an ailment the treatment of which was one of his operative ambitions: perforating gastric ulcer. He was a brilliant surgeon, a great organizer, and an esteemed leader in the field of medicine, and for one period President of the American Medical Association. During the World War he served as chief consultant for all surgical services and was stationed in the office of the Surgeon-General in Washington. In a note written just a few days before his death, he urged continued work for the advancement and stabilization of medical science and the traditions of medical practice.

Our Indian Letter

(From Our Own Correspondent)

INDIAN CHEMICAL MANUFACTURES

Sir P. C. Ray addressing the first annual general meeting of the Indian Chemical Manufacturers' Association, Calcutta on Nov. 6, said that "in India the chemical industry is mostly confined to the manufacture of pharmaceutical preparations and drugs, although the manufacture of heavy chemicals is also receiving attention now.

"I would first refer to the serious problem of the existence of the traffic in adulterated and spurious drugs. The industry is as much opposed to the traffic in adulterated and spurious drugs as any other section or the public at large. The real cause of adulteration was rightly pointed out by the Chopra Committee to be the demand for cheaper medicines which unscrupulous dealers have not been slow to exploit. Ever since the establishment of the Association, therefore, the Committee have worked assiduously for putting practical proposals before the Government of India to arrive at a solution of this problem. A comprehensive draft Bill relating to the control of drugs prepared by a Special Sub-Committee of the Association appointed for the purpose was submitted to the Government of India early this year to form the basis of legislation for the prevention of adulteration. The questions of import duty on raw drugs and railway freight on drugs and medicines have also been receiving the careful attention of your Committee."

It may also be mentioned in this connection that the Government of India is anxious to find ways and means by which India can be made self-sufficient in the manufacture of basic drugs, and a Conference of representatives of medical industries is being convened for this purpose at Delhi under the guidance of Lt.-Col. Jolly, Director-General of Indian Medical Service.

SANDFLY FEVER

Investigations have been made into the causes of sandfly fever in the Peshawar Cantonment by the King Institute, Guindy, Madras, under the auspices of the Indian Research Fund Association. The field work was carried out in Peshawar and the laboratory work partly in Peshawar and partly in the King Institute, Guindy.

Surveys have been carried out in various barrack areas where the incidence of the fever was uneven, and in no case was there found any real or direct relationship between the number of sandflies in a building and the number of cases of fever occurring therein.

In one British unit, thus affected, the important factor appeared to be the presence of a derelict building whose walls were in a dilapidated state and lying close to the barrack building in which most of the cases were occurring. A thorough renovation of this building produced a satisfactory reduction in the number of cases.

In several Indian troop lines unequal incidences were investigated and the chief cause appeared to be geographical i.e., the places most heavily affect-

ed were those populated by men who came from outside the "sandfly areas" and particularly was this the case among hillmen such as Dogras and Kumaonis.

SANDFLIES DO NOT FLY HIGH

There is a commonly held view that sandflies do not fly more than a few feet above ground and that persons sleeping on the upper storey of a building accordingly enjoy protection. But it was found that sandflies were present in almost equal numbers on both floors of a building and that the incidence of the fever was higher among the persons sleeping upstairs.

Experiments were carried out to determine the minimum wind speed against which a sandfly could not fly and the results indicated that it was 1.6 to 1.7 miles per hour. This is the speed of an ordinary non-oscillating table fan, running at the lowest speed at a distance of six to seven feet. Sandflies are possibly more sluggish in the daytime than at night.

Soil disinfection work was carried out at Nowshera to see if the number of flies in a building could be materially reduced by large scale larvicidal measures. But the number of flies caught showed no appreciable decrease. The experiment drew attention to the heavy financial effect of this type of work, and it is computed that even if the cost of naphthalene in kerosine be as low as one rupee per gallon, the cost of a single treatment of the Peshawar Cantonment area would be approximately Rs. 25,000.

THE PREVENTIVE METHOD

That the solution had definite larvicidal properties was demonstrated by the fact that at the time the work in Nowshera was commenced, artificial breeding places were made in Peshawar and were treated with this solution. Neither of the treated places yielded any adult flies, but from both of the two control places, they hatched out in large numbers.

The most satisfactory preventive method would appear to be the obliteration of all places likely to shelter the developing fly. This requires constant supervision, and a properly trained working party to prevent the accumulation of rubbish dumps, and to close all cracks in the sides of nullas and the walls of homes.

Work on these lines has been carried out intensively at Landi Kotal and Peshawar for several years past and has markedly reduced the number of sandflies and the number of fever cases.

MYSORE UNIVERSITY PRESENTS THE

L. M. P. DIPLOMA

For the first time in the history of the University Medical School, Bangalore, candidates who had passed the L. M. P. examination in March and October, 1939, were presented with their diplomas at a special meeting of the Senate, Rajakaryaprasakta N. S. Subba Rao, Vice-Chancellor, presiding.

All these years, the candidates who passed out were given their diplomas at the School Day cele-

brations. Thanks to the efforts of Dr. (Miss) Albuquerque, present Principal of the Medical School and the first woman to hold that post, and the Dean of Faculty of Medicine, the University agreed with this innovation.

After the Senators had assembled with their picturesque academic gowns, the Vice-Chancellor distributed the diplomas to the candidates who were presented by Dr. Albuquerque. Fifty-one candidates, including ten ladies, received the diplomas.

DR. N. S. SUBBA RAO'S ADVICE

Addressing the licentiates in medicine, Dr. N. S. Subba Rao advised them not to feel ashamed of their work. The licentiates suffered generally from inferiority complex. Wherever they were, they could make themselves useful to the society. Their work would possibly be in the villages.

Proceeding, the Vice-Chancellor exhorted the licentiates not to treat their environment with indifference and contempt. After all, it was the village peasant who paid for their education and the salaries of the Government servants. The peasant must get his return. Wherever they were, they, the licentiates, must remember they had immense possibilities for developing their personality, environment and the country. Every village child, he pointed out, should be looked upon as a potential Mahatma or Nehru who would render valuable service to the Motherland.

EXTRACTS

The Use of Oxygen in Body Cavities

Bainbridge (*U. S. Naval Medical Bulletin July, 1939*) believes, after many years of experience, that infusion of oxygen in body cavities in some pathological conditions is of much benefit. After giving a few illustrative cases, he concludes:

- (1) That oxygen is of value in cases of tuberculous peritonitis, particularly of the ascitic variety.
- (2) That it is of value in selected cases of pleurisy with effusion.
- (3) That it is utilised to advantage in cases of tuberculosis of lungs with artificial pneumothorax.
- (4) That it is of value as a tonic support and to prevent adhesions in certain cases where large abdominal tumors are removed.
- (5) That it is of value in lessening the number of tapplings in cases of ascites due to a cardiac, hepatic or renal condition.
- (6) That it is a therapeutic treatment which exerts a highly beneficial action, and in some instances is a life-saving procedure.

Sea Sickness

Poppen (*Ibid*) writes that in defence of the labyrinth as responsible for sea-sickness the following points are worthy of consideration in arriving at a verdict:

- (1) Movements in the direction and of the magnitude of a ship in sea produced on a Barny chair or tilting table will not stimulate the labyrinth to produce nausea. It is necessary that the canals be rotated by several rapid revolutions about

an axis which at least approximates the axis of the canals before nausea is produced in the normal individual. (2) Labyrinthian vertigo is pronounced as an accompaniment of "Barany chair nausea" but is a rare symptom in sea-sickness. (3) Labyrinthian nystagmus is not described as a sign of sea-sickness but is characteristic of labyrinthian stimulation. (4) A purely labyrinthian origin will not explain the sudden abrupt onset of symptoms after a long period of movement and without change in the direction and magnitude of the ship's movement, or will it explain cessation of symptoms without change in movement. (5) It will not explain individual variation. Within rather restricted limits all normal individuals should be made sick by the same sea. (6) If the symptoms are caused by an hyper-irritability of the labyrinth the administration of strychnine and atropine should exaggerate rather than ameliorate them, yet these drugs are very effective in sea-sickness.

These points alone appear to constitute a sufficient alibi for the labyrinth. On purely physiological ground it appears much more just to indict the somatic senses.

Epanutin in Epilepsy

Donald (*Post-Graduate Medical Journal*, Sept. 1939, p. 344) summarises his tentative conclusion regarding the action and effect of Epanutin (Sodium-Di-Phenyl-Hydantoinate) as follows: (1) A minimum threshold dosage of 3 gram a day (three capsules) is essential in all adult cases. Neglect to give this sufficiency, no matter how small the dosage of previous sedative, will almost certainly lead to fits. (2) The action of the drug is rapid and does not appear to be cumulative. (3) Early withdrawal in toxic cases has almost immediate effect. (4) It has specific effect in each individual case, and in many only produces really effective anti-convulsant action when given in such a dosage as to cause toxic symptoms. (5) There are certain cases in which its anti-convulsant action apparently predominates, and who have been on it for many months without any toxic manifestations. (6) Some cases appear to acquire an increased tolerance, as exemplified by the absence of toxic symptoms on the occasions of its reintroduction. Others appear to become more susceptible, as witness those who develop late toxic symptoms. (7) The mode of its action is uncertain. It seems to be of the nature of an increased resistance to the convulsive discharge. In many cases this leads to a condenser effect, with the result that fits, although less frequent, are more severe; while in others, following a prolonged cessation of fits there is a sudden outburst of many fits in a short time. (8) We are far from a complete understanding of its actions, and a final judgement must await more prolonged and extensive trial.

Application. Pending a final verdict regarding the therapeutic potentialities of this drug, or the discovery of a derivative of equal anti-convulsant and less toxic properties, its use would appear indicated under the following conditions in cases

failing to benefit from the better known and less toxic anti-convulsants:—(a) Provided that the toxic symptoms are fully appreciated and such precautions taken as may ensure the patient's being seen at the earliest possible moment following these appearances and the drug immediately stopped. (b) Provided that facilities for hospital treatment are available if necessary. (c) In psychotic cases with marked temperamental defects.

Finally, as this drug's paramount vindication, one may stress certain cases in which its anti-convulsant properties are very marked and its toxic properties are absent, and others whose temperamental reactions are improved, although the reduction of fits is slight. These advantages would appear to give "Epanutin" a definite place in the therapy of epilepsy, provided that indiscriminate use is avoided and adequate precautions taken. At the same time, more prolonged and extensive observation is required before a final verdict regarding its therapeutic potentialities is pronounced.

Haemorrhage in Peptic Ulcer

Graham and others (*Lancet*, Sept. 30, 1939, p. 729) point out that adequate diet is an important factor in assisting recovery from haemorrhage in peptic ulcer and that extremely low recovery-rate after operation indicates the extremely hazardous nature of surgical interference in recent haemorrhage in peptic ulcer. They summarise their other observations as follows: (1) A series of 241 consecutive cases of haemorrhage in peptic ulcer has been reviewed, mainly from a therapeutic aspect. The patients were divided into four groups: 59 with gastric ulcers, 134 with duodenal ulcers, 7 with gastrojejunal ulcers, and 41 in whom the precise situation of the ulcer could not be accurately determined. Males accounted for 60 per cent. of the gastric ulcer group and 72 per cent. of the larger duodenal group. (2) Hyperchlorhydria was present in most (61 per cent.) of the patients, but 12 per cent. had hypochlorhydria and 3 per cent. complete achlorhydria. (3) Recovery-rates after operation have shown that the part played by surgery in the treatment of haemorrhage in peptic ulcer is very small. (4) In this series the fatality-rate from all causes was 9.54 per cent. In earlier part of the period under investigation, when the treatment given was the classical low-calorie intake, the fatality rate was 10.8 per cent. in 169 patients, but after the introduction of more generous diets the figure fell to 6.15 per cent. in 72 patients. None of those treated with the new high-calorie intake (Hurt's diet schemes) died. (5) The majority of the fatal cases had chronic ulcers in the pyloric region, either on the posterior wall of the stomach or of the duodenum vessels having been eroded. All the patients that died had haemorrhage more than once. (6) In the treatment of the consequent anaemia excellent results followed the administration of iron and ammonium citrate, or the saccharated carbonate of iron in large doses but remarkable recuperation of blood may follow a

THERAPEUTIC AID TO DIGESTIVE SYSTEM

Bulk of diet in our country is composed of a large quantity of carbohydrates and as such they tax digestion. Undigested food retained long in the stomach leads to heaviness, flatulence and heartburn. Delayed digestion leads to loss of appetite, defective nutrition and chronic dyspepsia. Starchy foods such as rice, bread, sooji, potato and sweets (cane-sugar) are all known as carbohydrates. After digestion they are converted into sugar or glucose. Starchy food is digested by a kind of enzyme known as diastase or amylase, naturally present in the salivary, intestinal and pancreatic juice. Indigestion, acidity and the like ailments are due to a faulty secretion of the ferments in quality and quantity.

To remedy such ailments, and particularly to help in the proper digestion of the starchy food, the **Bengal Immunity Research Laboratory** has been successful in preparing the potent enzyme preparation—**Bi-Diastase** of vegetable origin, having the capacity of digesting more than three hundred times its weight of starch. Each tea-spoonfull of this contains sufficient ferment to thoroughly digest about 2 oz. of starch in 2 minutes. It has been found very useful in cases of Gastritis, Heartburn, Indigestion, Flatulent Dyspepsia etc.

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single hæmorrhage without any iron being given. Injections of iron were almost useless.

Oestrogenic Hormone Therapy

Jeffcoate (*Br. Med. Jour.*, Sept. 30, 1939, p. 671) mentions the indications as follows: Menopause and climacteric, senile vulvitis and vaginitis, genital hypoplasia, amenorrhœa and missed abortion, uterine inertia, involutionary mastitis, infantilism, alopecia, facial hirsuties, migraine, hæmophilia and peripheral vascular diseases such as Raynaud's disease and thrombo-angitis obliterans. So far as is known at present, the most harmful effect of oestrogenic substances is depression of ovarian activity. Evidence shows that this is a real possibility, and it behoves us to be most careful in the treatment of young patients suffering from oligomenorrhœa, dysmenorrhœa, and sterility. To minimize the risk to the ovaries in young patients, treatment should never be prolonged for more than a few months, and it should be given intermittently rather than continuously.

STILBOESTROL. The naturally occurring oestrogens are oil-soluble sterols all containing a phenanthrene ring. It was at one time considered that this chemical basis was essential for their oestrogenic properties. It was then discovered that compounds of a more simple structure may be oestrogenic, and recently one of these diethylstilboestrol (stilboestrol) has come to the fore. This compound can be prepared synthetically, and already its cost is much less than that of oestrone and oestradiol. Moreover, it can be administered orally or parenterally, and the evidence so far available shows that it is as active by mouth as it is by injection. One milligramme administered orally exerts an effect equal to that of the same amount of oestradiol benzoate injected intramuscularly. The only disadvantage is that stilboestrol in large doses frequently produces a sensation of nausea and malaise. This occurs after parenteral as well as oral administration. It is doubtful whether stilboestrol, which, so far as we know, does not occur naturally, should be regarded as a "hormone". I prefer to regard it as a hormone substitute.

Stilboestrol, even when given by mouth, has been shown to produce good results in the treatment of genital hypoplasia, amenorrhœa, menopausal symptoms, senile vaginitis and vulvitis, suppression of lactation, and, in fact, all the conditions for which oestradiol and oestrone have proved their value. Moreover, I have used it with success to induce labour in cases of intra uterine death of the foetus. The dosage laid down for oestradiol should from the basis of stilboestrol therapy, but when it is administered by mouth it is advisable to give it more frequently and in slightly larger quantities. The same principles of treatment should be followed, and it is rarely necessary to give more than 5 mg. daily.

At the present time stilboestrol therapy is still in the trial stage, but the initial reports go to prove its value. The original smear was obtained from a woman suffering from senile vaginitis: 50 mg. of

stilboestrol were administered by mouth during a period of five days and no local antiseptics were used. The second smear, that of a healthy vagina, was obtained six days after beginning treatment.

The efficacy of stilboestrol is further evidenced by a recent case of kraurosis vulvæ occurring in a woman aged 72. The condition had been present for five years, during which time she had received all manner of treatment, including x-ray therapy on two occasions. No form of treatment had given her more than slight and temporary relief from her intense pruritus. When the patient was first seen by the author the vulva showed a severe degree of kraurosis vulvæ with super-imposed ulceration and induration—the result of scratching. The lightest touch produced unbearable pain. Large doses of stilboestrol were given by intramuscular injection and also by mouth. In the course of seventeen days she received 220 mg. of stilboestrol (probably an unnecessarily large dose), but no other treatment except the local application of an analgesic ointment to ensure sleep. At the end of that time the second photograph was taken, and this showed the vulva completely healed except for two small ulcers. The patient was then given 3 mg. of stilboestrol daily, and one month later she was free from symptoms and the kraurosis was cured.

Hormone therapy is no doubt still in a crude state, but already it has passed beyond the stage of "gland extracts". Oestrogenic substances, both natural and synthetic, are pure chemical compounds dispensed by weight and possessing remarkable properties. It is truly amazing that such small amounts of material can exert such pronounced local and general effects. Stilboestrol is an adequate substitute for the natural oestrogens, and possesses advantages in that it is cheaper and is also equally active when administered by mouth. Treatment must, however, be based on physiological principles, and often needs to be prolonged for some time before its full effect is manifest. Careful selection of cases suitable for treatment is essential, and the empirical use of oestrogenic substances can only lead to disappointment.

Sweat As A Fungicide

Br. Med. Jour. (Sept. 16, 1939, p. 614) writes editorially: Some interesting work has been done in America by Samuel M. Peck and his assistants on the role of sweat as a protection against fungus infections of the skin. The hypothesis that sweat may have any definite protective action of this kind runs contrary to the accepted notions of most people, for we have always been accustomed to think that hyperidrosis conduced to fungoid infection of the skin, and the prevalence of such infections in hot climates has always been considered to support that theory. Dr. Peck, however ascribes that undoubted clinical fact not to the actual hyperidrosis but to the dilution of the sweat that takes place under such conditions. He shows that sweat, the secretion of which has been induced by heat, has undoubted fungicidal properties which are due to its content of various

organic acids—for example, acetic, lactic, and ascorbic acid. Substances must be present in proper concentration to exert their effect. The areas of the body where there is the greatest concentration of sweat seem, he says, to have less tendency to fungus infection, which may, he finds, respond well to the topical applications of these acids in proper concentration. On the other hand, sebum has no fungicidal properties at all. Peck supports his theory by pointing out that the areas of the hands and feet where there is most active secretion of sweat are on the palms and soles, which are seldom infected, whereas the arch of the foot, which is comparatively free from actual sweat, is a favourite site for epidermophytosis; another favourite site is between the toes and in the clefts of the base of their flexor surfaces. Peck states that little sweat is excreted in this position, and that the insensible perspiration there, unlike the sweat secreted in response to heat, has but little fungicidal strength, and this forms an ideal situation for the development of fungi. Acting upon these ideas, he has employed mixtures of lactic acid, propionic acid, butyric acid, and ascorbic acid in proper concentrations as local remedies for fungus affections. Four different preparations were employed: (1) 10 per cent sodium propionate in 50 per cent. alcohol; (2) a powder containing 15 per cent. sodium propionate in venetian talc; (3) an ointment containing 15 per cent. of sodium propionate in lanolin and petroleum jelly; and (4) a solution containing all the five acids mentioned above in the strength of about 0.3 per cent. dissolved in 50 per cent alcohol. This solution was used only in cases in which fungi could be demonstrated microscopically. Satisfactory results were obtained in epidermophytosis, although Peck is as yet unable to say anything about the permanence of cure. It is not surprising to find that he had no success in the treatment of ringworm of the scalp. On the other hand, in eczema of non-fungus origin, especially in the groin and the axilla, he found that these substances were definitely irritating, suggesting that sweat plays a part in causing eruptions in these areas.

Specific Treatment for Beri-beri

Spies and others (*Jr. of A. M. A.*, Sept. 2, 1939, P. 936) write that infantile beriberi is treated best by giving, intramuscularly or intravenously, 5 mg. of thiamin hydrochloride in sterile physiologic solution of sodium chloride twice a day. Ten milligrams of the same substance may be given by mouth each day. Satisfactory anti-beri-beri treatment of the mother will aid greatly in the treatment of the nursing child.

For the adult, from 20 to 50 mg. should be given daily for severe beri-beri. From 5 to 10 mg. a day is adequate for the mild form. Parenteral injections, irrespective of the patient's age or any other condition, are always indicated when vitamin B₁ deficiency is associated with severe cardiac failure, severe peripheral neuritis or severe alimentary disturbances. There is no question but that the

oral administration of thiamin in adequate doses proves efficacious in the average case. However, patients are encountered who are refractive to oral medication. The advantage of parenteral therapy over oral treatment include the following: (1) parenteral administration causes more rapid improvement in the patient. (2) There is the certainty that the patient will actually absorb it. A deranged gastro-intestinal tract cannot serve as a block to absorption. (3) Massive doses of the active substance can be given more easily. (4) The management of the patient is so arranged that the medication is given under the supervision of the physician, thus eliminating carelessness or other possible interferences.

Drugs in Tuberculosis

Hurby (*Jr. of A. M. A.*, Sept. 16, 1939, p. 1125) gives the following useful prescriptions which are likely to be used in pulmonary tuberculosis:

(a) COUGH WITH MUCH SPUTUM

	Gm.	Cc.
Ammonium chloride	...	10
Syrup of glycyrrhiza	...	120
<i>Mix and label: teaspoonful in a half glassful of water every two hours.</i>		

	Gm.	Cc.
Ammonium carbonate	...	5
Distilled water	...	20
Syrup of acacia	...	60
" " Glycyrrhiza	to make	120
<i>Mix and label: two teaspoonfuls in a half glassful of water every two hours.</i>		

(b) DRY COUGH

	Gm.	Cc.
Codeine phosphate	...	0.25
Distilled water	...	4.00
Aromatic syrup to make	...	120.00
<i>Mix and label: teaspoonful in a little water every two hours as required.</i>		
Codeine phosphate	...	0.25
Saccharin	...	0.015
Glycerin	...	2.00
Peppermint water	to make	60.00
<i>Mix and label: teaspoonful in water every two to four hours as required (for associated diabetes).</i>		

	Gm.	Cc.
Menthol	...	0.50
Creosote,		
Chloroform, each in sufficient quantity		
to make	30.00	
<i>Mix and label: inhale by putting a few drops on a "chloroform mask".</i>		
Tincture of benzoin	...	60 Cc.
<i>Label: teaspoonful in one-half pint of hot steaming water and inhale every three hours.</i>		

(c) DYSPNOEA

Digitalis	2 Gm.
<i>Divide into twenty capsules.</i>	
<i>Label: one every four hours.</i>	

(d) ASTHMATIC DYSPNOEA

	Gm.	Cc.
Potassium iodide	...	8
Ammonium chloride	...	10
Fluid extract of lobelia,		
" " of belladonna, of each	2	
Tincture of hyoseyamus	...	16
Syrup of glycyrrhiza in sufficient		
quantity to make	120	
	Gm.	
Ephedrine sulfate	...	0.75
Phenobarbital	...	1.50

Mix and divide into fifteen capsules.

Label: one every two hours as required.

Epinephrine 1: 1000 ampoule as required.

(e) PAIN

	Gm.
Codeine phosphate	...
Caffeine citrate	...
Acetylsalicylic acid	...
Acetophenetidin	...

Mid and divide into fifteen capsules.

Label: one every four hours as required.

(f) FEVER

	Gm.
Acetylsalicylic acid	...
Calcium gluconate	...

Divide into ten powders.

Label: one every four hours as required.

(g) LAGGING APPETITE

	Cc.
Tincture of nux vomica	...
Compound tincture of cardomom	...
" " gentian q. s.	
to make	60

"Tuberculosis" he concludes, "is not readily accessible to medicinal measures. The chief stumbling block lies in the fact that it is difficult or impossible to get to the pathological condition. Thrombosis of the blood vessels, shutting off the circulation to the tubercle, forms a barrier against drugs, a barrier further reinforced by the natural defences to foreign body intrusion, as represented by the goblet and ciliated cells of the mucous membrane of the respiratory tract and the smooth muscle fibres of the bronchi. The chief hope for a specific treatment in the future lies in research which should extend along lines of study directed toward the development of a drug that will stimulate the body's defence reactions.

Diagnostic Pitfalls

WILLIAM FITCH CHENEY, (*Medical Times*, March, 39, p. 103) writes: In diagnosis we are taught to depend upon certain rules that usually are reliable; but now and then such confidence leads to error. We learn, therefore, more from experience than we do from books; because the exception to rules thus acquired impresses us even more strongly than the rules themselves. An illustration of this fact is afforded by the following case report.

History: A man aged 61 had been ill for about three months when he first presented himself for advice. His chief complaint was of attacks of pain in his right side at the border of his ribs. Of these there had been three. The first one was not very severe but lasted a few hours. After that he remained well for about two weeks before a second attack occurred. This lasted all of one day but was not particularly severe. No jaundice accompanied or followed either of these paroxysms of pain. Then, after three weeks' intermission, came a third attack, more violent than either of the two preceding; beginning one morning, and lasting all day, with very intense pain. Following this the patient began to get yellow and had continued to be so ever since, the pigmentation gradually increasing in degree, with constant itching of the skin. No further complaint was made of pain but since the last attack the man had felt miserable; with no appetite, more or less distress and sourness after all food, weakness and depression of spirits and continuous loss of weight.

Physical Examination: The patient's weight was 165 pounds as compared with 182 before his illness began. The skin and all visible mucous membranes showed extreme jaundice. There was no sign of organic disease of the heart but its rate was slow. The lungs likewise gave no evidence of disease. The liver was moderately enlarged so that its lower border was palpable a little below the costal margin and it felt more firm than normal; but it was not tender and its surface was not irregular. The spleen was not palpable. No abdominal tumor or other abnormality could be discovered. There was no edema of the extremities.

Laboratory Examinations: Only a slight secondary anemia was found, with hemoglobin 85 per cent, red corpuscles 4,360,000 and white corpuscles 9,500. The blood Wassermann was negative. The icterus index was 100 units. Stomach contents after a test meal showed almost complete absence of free HCL. The urine was normal except for the presence of bile. The faeces were of clay color with a large increase in fat but presented no other abnormality.

X-ray Examinations: Before the patient came under my observation, x-ray films of his gallbladder region had already been made at a large hospital elsewhere; and he brought with him a report stating that the gallbladder contained either one large stone or a conglomeration of small ones. This examination was repeated at Stanford Hospital and there also the report stated: "the gallbladder is full of stones". No defect was noted in the outline of stomach, pylorus or duodenum.

Diagnosis: The history of several attacks resembling biliary colic, with a final one followed by persistent jaundice, is typical of recurring passage of a gallstone from the gallbladder to the

duodenum, before the stone finally becomes impacted in the common duct. All this is so characteristic that from history alone the diagnosis seemed certain. That the jaundice was of the obstructive type was proved by the degree of bilirubin retention in the blood, by the intense itching of the skin and by the absence of symptoms that characterize acute or chronic hepatitis or conditions causing hemolysis. When a neoplasm originating in the common duct is the cause of the obstruction, another trusted diagnostic rule is that jaundice comes on insidiously, without attacks of pain preceding it. When the duct obstruction is caused by pressure of a mass originating elsewhere, as in the stomach or pancreas or gall-bladder, different symptoms are presented, different signs are discovered on physical examination, different laboratory findings are observed and x-ray films show the effects produced by such a mass on other organs besides the bile duct. Thus it seemed as reasonably certain as investigation can make it, that this man had cholelithiasis with a stone lodged in his common duct; and for this operation was advised.

Operation: When the abdomen was opened however, contrary to all expectations, no gallstones were found; there were none in the gallbladder and there was none in the duct. The diagnosis was correct to the extent that the jaundice was obstructive; but the cause of obstruction was found to be a neoplasm situated just at the junction of the cystic and hepatic ducts. This was about an inch long, very hard and dense, the size of a little finger, extending higher up the hepatic than along the cystic duct. No attempt was made at removal, because this would prevent any subsequent connection between the liver and the bowel for the transmission of bile. No anastomosis between gallbladder and duodenum was feasible, because hepatic duct occlusion made this useless. Thus what promised to afford relief to cholelithiasis and jaundice, by cholecystectomy and restoration of a patulous common duct, turned out to be discovery of a hopeless situation for which no cure was possible.

Comment: The most deplorable consequence of a wrong diagnosis is the faulty prognosis that follows. To assure a patient that the condition causing symptoms is such that it can be removed by surgery, with restoration of health, and then be compelled to explain subsequently that what was found could not be successfully removed after all, is not a happy experience. Human judgment is fallacious, and therefore it is better to speak guardedly and not too positively about both diagnosis and prognosis. One of the bits of advice repeated to students by Osler, at frequent intervals, used to be this. "Don't talk too much. The less you say, the less you have to take back"; and the wisdom of this appeals to us more and more, the older we grow, and as experience increases.

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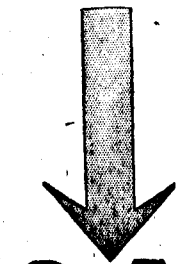
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*Bishop, P. M. F., Boycott, M., and Zuckerman, S. (1939) *Lancet*, 1, 5, and Winterton, W. R., and MacGregor, T. N., (1939) *British Medical Journal*, 1, 10.

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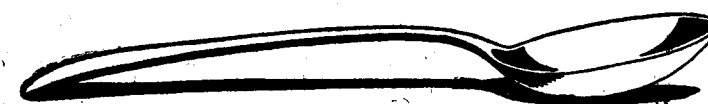


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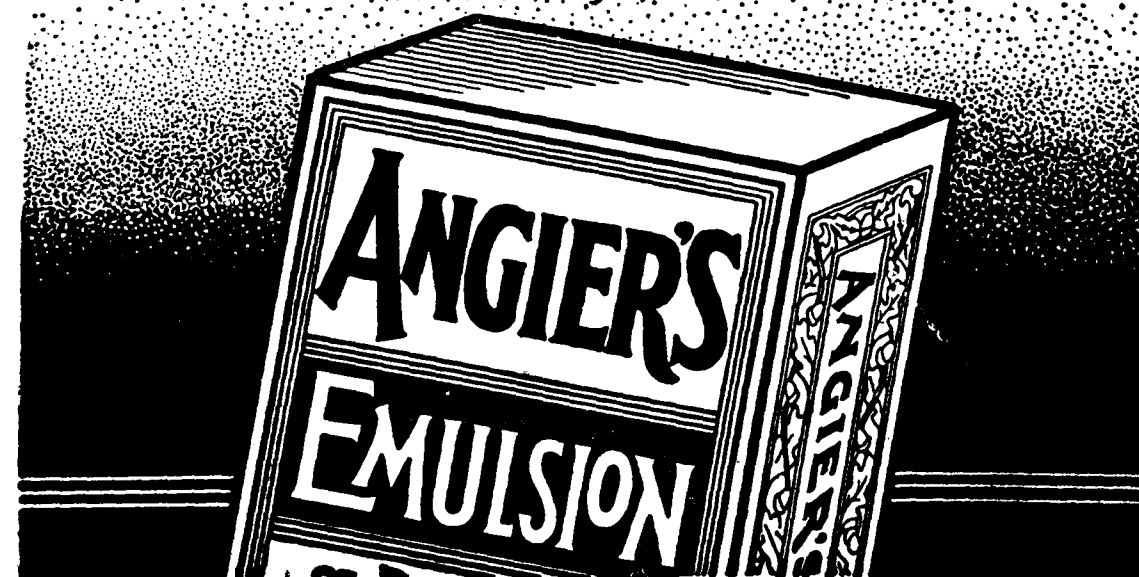
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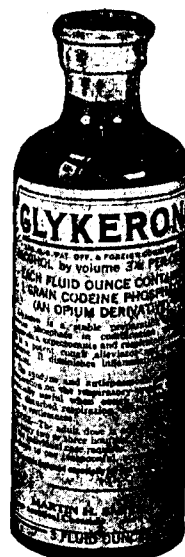
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