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¹Wilder, R. M.: General Discussion: Proc. Staff Meet., Mayo Clinic 9:606 (Oct. 3), 1934.

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*The Management of Ineffective Pneumothorax in the presence of Cavity Formation

J. E. HILTZ, M.D.,

Asst. Medical Superintendent, Nova Scotia Sanatorium.

THAT artificial pneumothorax has been a life saving measure in thousands of cases cannot be denied. It is accepted as one of our simplest and best forms of compression, or rather relaxation, treatment. In many cases following the initiation of the pneumothorax, the patient shows immediate signs of improvement; the weight, strength and appetite increase, the cough and expectoration lessen and the sputum may quickly become free from tubercle bacilli.

Unfortunately this immediate improvement does not always occur and we may find ourselves faced with a case in which a cavity refuses to close or the sputum fails to become negative. In other words, the artificial pneumothorax remains ineffective.

The main factors responsible for this ineffectiveness are as follows:

1. *Pleural adhesions* may prevent closure of cavities.
2. The *thickness of a cavity wall* may interfere with closure.
3. *Partial blockage of a bronchus* leading to a cavity may cause increased air pressure within it and so prevent its obliteration.

The most obvious and the most frequently encountered of these etiological factors is the presence of pleural adhesions, which are so often situated immediately over the cavity, when one is present, and so mechanically prevent its closure. In such cases, intrapleural pneumonolysis should be attempted. It is safe to say that a thoracoscopic examination of the adhesions should never be omitted when the pneumothorax is ineffective, provided, of course, that such pleural complications as an acute effusion or empyema do not contraindicate the procedure. This should be carried out regardless of the X-ray and fluoroscopic appearance which may seem definitely to classify the case as inoperable. Indeed, with the exception of pleural symphysis over a wide area, it is surprising the number of adhesions considered impossible to cut when viewed radiologically which may be cut after study through the thoracoscope.

A cavity that resists all forms of compression therapy frequently spells a hopeless or at least a very bad prognosis for the patient. If the life is worth saving the adhesions are worth looking at thoracoscopically.

It is not the purpose of this paper to discuss the contra-indications for pneumonolysis but it might be well to mention one which is not often quoted in the literature;—The presence of superficial tubercles scattered over the surface of the adhesion or the pleura. Indeed, this may be an indication to abandon pneumothorax immediately and substitute some other form of compression treatment. Doctor Schaffner, our surgeon at the Sanatorium, has been able to fortell the development of a tuberculous empyema in a number of cases, in some of which the adhesions were not cut but a thoracoscopic

*Read at the Meeting of the Maritime Tuberculosis Workers, Moncton, N. B., September 20, 1938.

examination revealed these tubercles studding the pleura. Some of these cases have gone on to thoracoplasty. We must remember that a tuberculous empyema is a serious affair and should be avoided at all costs, especially if the pulmonary disease may be brought under control by other compression measures.

Of 91 consecutive pneumonolysis cases carried out at the Sanatorium prior to last fall, in only 15 was pneumonolysis the solitary measure used to try to convert an ineffective pneumothorax into an effective one. In many of the other cases definite cavity formation was not present or the adhesions were not cuttable. However, in 13 or 86.7 per cent of these 15 cases this procedure was successful in closing the cavity. It is interesting to note that both the cavities that were not closed, were greater than 4.0 cm. in diameter whereas all the cavities closed were smaller than this.

Of importance, also, is the fact that in 12 of the 13 cases in which the cavity was closed, this occurred within three months of the time of operation. The remaining one was closed within six months. The moral would seem to be,— If the cavity is not closed within three months or at least markedly decreased in size, one must not delay in bringing to bear some additional surgical aid. Open cavities are dangerous.

It is of interest but rather to be expected that all thin-walled cavities (six in number) were closed; 3 moderately thick-walled cavities were closed and one was not; 1 thick-walled cavity was closed and 1 was not; and three cavities existing within pneumonic consolidation all were closed.

In 36 cases of ineffective pneumothorax with cavity formation phrenic nerve paralysis alone was instituted in an attempt to relax adhesions and so close the cavities. In 22 or 61.1 per cent this was successful. Of the 14 unsuccessful cases, many to-day would have been given the additional aid of pneumonolysis or thoracoplasty. Unfortunately these procedures have only been readily accessible to the patients of the Nova Scotia Sanatorium since 1935 by which time most of the cases had passed out of our hands or further operative interference was contraindicated by contralateral disease.

Of the 22 cases in which the cavities were closed, in only 18 were we able to establish the presence of tubercle bacilli before the operation. Of these, 15 or 83.3 per cent were rendered free from bacilli. Of the three cases in which the sputum did not become converted, the presence of tubercle bacilli was due to contralateral disease.

Again we find that 16 or 72.7 per cent of the cavities which closed did so within six months of the phrenic nerve operation. Only 4 required 15 or 18 months to close. Naturally the hoped-for mechanical result cannot be obtained as quickly by a slow rise of the diaphragm and the mere relaxation of the adhesions as it can by complete and instantaneous severance of the adhesions. Nevertheless, if the cavities do not diminish greatly in size or close within three to six months of the phrenic nerve operation, one should immediately consider the advisability of applying some additional operative aid.

As is generally appreciated, the results from phrenic nerve paralysis were much improved when the cavities were situated in the lower lobe rather than in the upper.

It has been shown in our recent study of 250 cases of phrenic nerve paralysis that thick-walled cavities do not respond well to phrenic paralysis alone. However, when several measures such as phrenic plus artificial pneumothorax are brought to bear upon a cavity, the prognostic value of the thickness of the walls does not appear to be so important. In this instance of the cavities

closed, 4 or 18 per cent were thick-walled, whereas of those not closed 3 or 21 per cent were thick-walled.

In 3 cases both diaphragmatic paralysis and intra-pleural pneumonolysis were brought to bear upon a cavity resisting pneumothorax treatment. In all of these the cavity was closed but in one case the sputum was not rendered negative due to the presence of contralateral disease. Two of the cavities required only three months to close and the other did not close for twelve months.

In 2 additional cases a thoracoplasty operation was required after a phrenic nerve paralysis combined with a pneumonolysis did not bring about closure of the cavities. By this means both cavities were closed and the sputum rendered negative in each case; and *this* occurred within six months after the thoracoplasty operation.

In 4 cases a phrenic nerve operation was followed by a thoracoplasty in an effort to convert an ineffective pneumothorax into an effective one. In two or 50 per cent of the cases this was successful and in both cases the cavity was closed within three months.

To summarize briefly:—60 cases of ineffective pneumothorax were studied. In each case an open cavity was present. Of these sixty cavity cases, 42 or 70 per cent of the cavities were closed. Of the sixty cases, 46 had persistently positive sputum right up until the final surgical procedure was applied. Of these, 31 or 67.4 per cent were rendered negative by this final procedure. However, of the sixty cases discussed, 57 had a positive sputum before pneumothorax treatment was initiated. This means that 71.9 per cent of these refractory cavity cases were rendered non infectious. From the point of view of Public Health this is vastly important to say nothing of its importance with respect to the patients' own state of health.

Of the 42 cavities closed, 35 or 83.3 per cent were obliterated within six months of the final operative procedure.

No mention has been made of the treatment of tension cavities kept open by the increased pressure of the air trapped within them by a partly obstructed bronchus. In many cases, of course, complete obstruction of the bronchus is followed by absorption of the air within the cavity. Its closure may be obtained by kinking of the bronchus following the initiation of some surgical aid. Regarding the cauterization of the partial bronchial obstruction after its localization by means of the bronchoscope, it must be stated that this has not been attempted at the Sanatorium.

The cases examined go back over a period since 1930 at which time the first phrenic nerve operation was performed at the Nova Scotia Sanatorium. Intrapleural pneumonolysis and thoracoplasty did not become available to our patients until late in the fall of 1934. Consequently, in many cases there was a very long delay between the initiation of surgical aids, and all this delay occurred while the pneumothorax remained ineffective. Indeed in many cases the surgical aid had to stop with the phrenic paralysis. We feel that the results obtained in our next sixty cases of ineffective artificial pneumothorax will be infinitely better than in the series just reported.

This will be accomplished by two favourable factors. In the first place, we now have at our disposal any surgical procedure which may be indicated. Secondly, we are learning that surgery should not be delayed long; and if one procedure is not adequate, it is necessary to initiate another as soon as possible. There is little justification for waiting longer than three months

before considering a phrenic or a thoracoplasty operation if a pneumonolysis has not decreased definitely the size of a cavity and so given promise of its closure within the near future. Generally speaking, the longer a cavity remains open, the more difficult it is to close. Also, the longer a cavity remains open, the longer it is necessary for the patient to tax his financial resources or those of the municipality or town which may be trying to provide adequate treatment for him or her.

All mention of Oleothorax treatment has been omitted. Undoubtedly, a few of our cases responded well to this form of compression therapy but on the whole our end results were rather disappointing. Apparently, in most institutions this procedure is being used less and less. However, it is felt that there is still a limited field for it; not as a prolonged form of compression therapy but rather as a temporary measure to sterilize an empyema or close in a localized lesion while waiting for the patient to improve physically to such a degree that a thoracoplasty operation may be carried out.

The Effect of Some Organic Arsenicals and Bismuth on Liver Function

(Bromsulphalein Test)

R. A. MOREASH, M.D.

Berwick, N. S.

IN order to overcome some of the difficulties encountered in the use of phenoltetrachlor phthalein (1) as a liver function test, a pharmacological study of various phthalein compounds has been made (2). The result of these investigations was that phenoltetrabromphthalein sodium sulphonate (bromsulphalein) was found to be the most suitable of all the dyes for this purpose.

A clinical application of the test has been introduced (3). The patient is weighed and the dosage of bromsulphalein is calculated on the basis of 2 mg. per kilogram of body weight. The weight of the patient in pounds divided by 55 gives the correct dose in cubic centimetres of a 5 per cent solution. The intravenous injection should be made slowly enough to occupy at least one minute. Thirty minutes after the injection of the dye, a sample of blood, 6 to 8 c.c., is taken preferably from a vein of the opposite arm. After the blood has coagulated, it is centrifugalized and the clear serum is pipetted into two small tubes. To one of these, one or two drops of a 10 per cent solution of sodium hydroxide are added to bring out the colour of the dye; to the other a drop of 5 per cent hydrochloric acid is added to clear the serum of any blood pigment. The amount of dye present is then estimated by direct comparison with a series of standards (4).

If the serum thus obtained is not clear enough to determine the amount of dye present, the bromsulphalein can be extracted by the use of acetone (5). This method was used in most cases when working with dogs.

The dose of bromsulphalein for the dog is 5 mg. per kilogram of body weight (6). One cubic centimetre of the 5 per cent solution for every ten kilograms of body weight gives the correct dose.

In the present investigation both dogs and human beings were used. In the case of the dogs liver function tests were done at regular intervals, usually twenty-four hours after administering a drug and then again at the end of a week. In some cases tests were carried out two, three and four times a week.

The following are typical results in dogs:—

Bismuth.

The bismuth used in both dogs and humans was metallic bismuth in aqueous suspension with 5 per cent glucose, there being 0.2 gm. bismuth in 1 c.c. The doses of bismuth are 1 c.c. and all injections were given intramuscularly.

(1) Male dog. Wt.—9 kilo.

Weeks	Dose	Dye Retention (%)
1-11	11 x Bi (0.2 gm.)	0

N.B. This work was carried out at Dalhousie University under the direction of Dr. N. B. Dreyer, formerly professor of pharmacology. It was made possible by a Banting Research Foundation Fellowship

Bismuth and Neosalvarsan:

All neosalvarsan was given intravenously. The dose of neosalvarsan is given in grams and the figure before it represents the number of doses given.

(1) Male dog. Wt.—9 kilo.

Weeks	Dose	9 Bi	Dye Retention (%)
1-9	9 x 0.36 gm.		0
10	1 x 0.36		5
11	1 x 0.36		0
12	1 x 0.3		0
13	1 x 0.3		0

Twenty-four hours after the tenth injection there was a 5 per cent retention, which is not unusual in many normal dogs. The dose of neosalvarsan given here represents in terms of body weight more than four times the average dose for the human. Similarly, the dose of bismuth represents about five times the average human dose.

Neosalvarsan.

(1) Female dog. Wt.—10 kilo.

Weeks	Dose	Dye Retention (%)
1	0.6 gm.	0
2	0.6 gm.	0
3	0.6 gm.	0
4	0.6 gm.	0
5	0.6 gm.	30
6	0.6 gm.	20
7	0.6 gm.	10
8	0.6 gm.	20
9	0.6 gm.	15
10	0.6 gm.	10
10 4 days	.....	5
11	.....	0
12	.....	0
13	.....	0

During the second and third weeks after discontinuing the treatment, there was no retention and whatever liver damage the animal suffered was soon repaired. The dose given to this dog corresponds in terms of body weight to six times the average human dose.

(2) Female dog. Wt.—6.3 kilo.

Weeks	Dose	Dye Retention (%)
1	0.24 gm.	0
2	0.24 gm.	0
3	0.24 gm.	0

(3) Female dog. Wt.—8.7 kilo.

Days	Dose	Dye Retention (%)
1	0.6 gm.	..
2	.....	5
3	0.6 gm.	..
4	.....	0
5	0.6 gm.	..
6	.....	0
7	0.6 gm.	..
8	.....	0
9	0.6 gm.	..
10	.....	0
13	.....	5
32	.....	0

This dog was given 0.6 gm. of neosalvarsan every second day until five doses were given. This amounts to 3 gm. in a little over a week. There was never more than 5 per cent dye retention, although the dye test was carried out for as long as three weeks after the last injection of neosalvarsan. However the dog was not well after such large doses so often. Although there were no gastro-intestinal symptoms and no jaundice, the dog was steadily losing weight and becoming less active.

To prove the reliability of the test the following experiment was performed. A male dog (wt.—14.7 kilo) was anaesthetized with chloroform for 45 minutes. Forty-four hours after the anaesthetic, there was 70 per cent retention of the dye. Chloroform had proved to cause long lasting liver damage (6).

Sulpharsphenamine. (Given intravenously.)

(1) Female dog. Wt.—8.6 kilo.

Weeks	Dose	Dye Retention (%)
1-8	8 x 0.3 gm.	0
9	.....	0
10-15	6 x 0.3 gm.	0

This animal was given eight injections at weekly intervals. Then after a week it was given six more weekly injections. No retention of dye was ever observed.

(2) Female dog. Wt.—7.5 kilo.

Weeks	Dose	Dye Retention (%)
3	3 x 0.3 gm.	0

(3) Male dog. Wt.—9.3 kilo.

Weeks	Dose	Dye Retention (%)
2	2 x 0.6 gm.	0

(4) Female dog. Wt.—8.6 kilo.

Weeks	Dose	Dye Retention (%)
1-2	2 x 0.6 gm.	0
3	.....	0
4-9	6 x 0.6 gm.	0

Dosage to dog in terms of human dose 6 times.

Salvarsan.

(1) Male dog. Wt.—11.7 kilo.

Weeks	Dose	Dye Retention (%)
3	3 x 0.15 gm. (intravenously)	0
4	0.15 gm. (intravenously)	20
5-6	2 x 0.15 gm. (intravenously)	0

The intravenous injections caused thrombosis of the veins and the intramuscular caused sloughing of the tissues. The intramuscular injections were given along with small quantities of procaine.

The salvarsan was prepared by dissolving 0.3 gm. in 40 cubic centimetres of twice distilled water. After the solution became clear, it was alkalized by adding the required number of drops of a 15 per cent solution of sodium hydroxide.

Twenty-four hours after the fourth injection there was 20 per cent retention. There was no evidence of retention at any other time.

(2) Female dog. Wt.—10.9 kilo.

Weeks	Dose	Dye Retention (%)
1	1 x 0.15 gm. (intravenously)	30
1 plus 4 days	.....	0
2-3	2 x 0.15 gm. (intravenously)	0
4	1 x 0.15 gm. (intramuscularly)	0
5	1 x 0.15 gm. (intramuscularly)	10
6-7	2 x 0.15 gm. (intramuscularly)	0

In the case of this dog, each dose was alkalized, then heated to 40-44°C for one minute, and allowed to stand for one-half hour before injecting, to allow some oxidisation of salvarsan to take place.

After the first and fifth doses, there was retention of the dye. Four days after the first injection the damage had passed off.

After the sixth injection the dog gave birth to a litter of nine pups which were healthy. No abortifacient properties are seen to be present in salvarsan.

(3) Male dog. Wt.—10.7 kilo.

Weeks	Dose	Dye Retention (%)
1- 2	2 x 0.3 gm. (intravenous)	0
3	1 x 0.3 gm. (intravenous)	20
4- 6	3 x 0.3 gm. (intravenous)	0
7-10	4 x 0.3 gm. (intravenous)	0

Twenty-four hours after the third injection the test animal showed 20 per cent retention. This damage was recovered from in the following weeks in spite of repeated injections.

The human cases, with the co-operation of Dr. Frank Mack, Head of the Department for Genito-urinary Diseases at the Dalhousie Clinic, were selected with two points in mind. One was to do liver function tests on some patients before treatment was begun, and to determine if any retention could be demonstrated during the course of treatment. The other was to choose patients who have had varying amounts of treatment and see if they showed any retention of the dye.

The following had liver function tests done before treatment was begun, one week after the beginning of treatment and then every two weeks. The tests were performed 1, 3, 4, and 7 days after the treatment and sometimes on the day of treatment. The total of the doses of neosalvarsan is given in grams.

- (1) Age 24. Male. Secondary stage.
Kahn test positive.
1.05 gm. in 2 weeks.
- (2) Age 55. Male. Secondary stage.
Kahn test positive.
1.05 gm. in 2 weeks.
- (3) Age 20. Male. Primary stage.
Kahn test negative.
1.65 gm. in 3 weeks.
- (4) Age 20. Male. Primary stage.
Kahn test positive.
1.65 gm. in 3 weeks.
- (5) Age 20. Female. Primary stage.
Kahn test positive.
1.8 gm. in 3 weeks.
- (6) Age 28. Male. Secondary stage.
Kahn test positive.
1.8 gm. and 1 Bi in 1 mos.
- (7) Age 35. Male. Primary stage.
Kahn test positive.
2.25 gm. and 3 Bi in 1 mos.
- (8) Age 32. Male. Primary stage.
Kahn test positive.
2.25 gm. and 3 Bi in 1 mos.
- (9) Age 32. Male. Secondary stage.
Kahn test positive.
2.4 gm. and 1 Bi in 1 mos.
- (10) Age 31. Female. Secondary stage.
Kahn test positive.
2.7 gm. in 1 mos. 2 weeks.
- (11) Age 19. Male. Primary stage.
Kahn test negative.
2.85 gm. and 1 Bi in 1 mos. 1 wk.
- (12) Age 25. Male. Primary stage.
Kahn test positive.
2.85 gm. and 2 Bi in 1 mos. 1 wk.
- (13) Age 17. Female. Primary stage.
Kahn test positive.
3.15 gm. and 4 Bi in 2 mos. 2 weeks.
- (14) Age 36. Male. Secondary stage.
Kahn test positive.
3.45 gm. in 1 mos. 1 week.
- (15) Age 20. Female. Secondary stage.
Kahn test positive.
3.45 gm. in 1 mos. 1 week.
- (16) Age 15. Female. Secondary stage.
Kahn test positive.
3.60 gm. and 8 Bi in 2 mos. 2 weeks.
- (17) Age 36. Male. Primary stage.
Kahn test positive.
4.05 gm. and 7 Bi in 1 mos. 3 weeks.
- (18) Age 17. Male. Congenital.
Kahn test positive.
4.2 gm. and 14 Bi in 7 mos.
- (19) Age 19. Male. Primary stage.
Kahn test negative.
4.65 gm. and 1 Bi in 2 mos. 1 wk.
- (20) Age 40. Male. Primary stage.
Kahn test positive.
In 1927—received 16.2 gm.
4.8 gm. and 7 Bi in 6 mos.
- (21) Age 32. Male. Primary stage.
Kahn test negative. Smears positive.
4.8 gm. and 9 Bi in 4 mos.
- (22) Age 18. Female. Secondary stage.
Kahn test negative. Smears positive.
4.8 gm. and 9 Bi in 4 mos.
- (23) Age 23. Female. Secondary stage.
Kahn test positive.
5.55 gm. and 6 Bi in 2 mos. 2 weeks.
- (24) Age 20. Female. Secondary stage.
Kahn test positive.
5.85 gm. and 5 Bi in 3 mos.
- (25) Age 31. Female. Secondary stage.
Kahn test positive.
6.6 gm. and 13 Bi in 3 mos.
- (26) Age 20. Male. Secondary stage.
Kahn test positive.
6.6 gm. and 9 Bi in 4 mos.
- (27) Age 49. Male. Primary stage.
Kahn test positive.
6.6 gm. and 11 Bi in 8 mos.
- (28) Age 26. Female. Secondary stage.
Kahn test positive.
8.9 gm. and 21 Bi in 7 mos.
- (29) Age 35. Male. Secondary stage.
In 1932, patient had fifteen treat-
ments in the arm and twenty
hip treatments.
Kahn test positive.
9.6 gm. and 20 Bi in 8 mos.

A few of these patients showed on only one occasion a retention of dye less than 5 per cent. The rest showed no retention at all during the course of the investigation.

(30) Age 26. Male. This patient had been under treatment a year ago and had been sick for a few days but on the occasion of the first liver function test he was getting better. The first test showed 55 per cent retention. A

week later there was no retention. No treatment given. Kahn test negative. Diagnosis—cholangitis. Routine van den Bergh tests did not reveal any hyperbilirubinaemia, where the dye test showed no retention.

Of the cases who have had varying amounts of treatment there are sixty, as follows:—

The tests were carried out on the day of treatment, and 1, 3, 4, and 7 days after treatments. The number of treatments, the doses and the time are given. The dose of neosalvarsan is given in grams.

- | | |
|--|--|
| (1) refused treatment. Kahn test positive. | (34) 13 x 0.6 gm. and 17 Bi in 10 mos. |
| (2) 8 x Bi in 3 mos. | (35) 13 x 0.6 gm. and 8 Bi in 7 mos. |
| (3) 0.45 gm. | (36) 14 x 0.6 gm. and 11 Bi in 3 mos. |
| (4) 0.45 gm. | (37) 14 x 0.6 gm. and 21 Bi in 15 mos. |
| (5) 0.6 gm. | (38) 15 x 0.6 gm. and 28 Bi in 14 mos. |
| (6) 0.6 gm. | (39) 15 x 0.6 gm. and 26 Bi in 11 mos. |
| (7) 0.6 gm. | (40) 16 x 0.6 gm. and 30 Bi in 2 yr. 1 mos. |
| (8) 2 x 0.6 gm. in 2 weeks. | (41) 16 x 0.6 gm. and 25 Bi in 9 mos. |
| (9) 1 x 0.75 and 1 x 0.9 gm. in 2 weeks. | (42) 16 x 0.6 gm. and 12 Bi in 15 mos. |
| (10) 2 x 0.9 gm. in 2 weeks. | (43) 8 x 0.6; 8 x 0.75 and 41 Bi in 2 yr. 5 mos. |
| (11) 3 x 0.45 gm. and 2 Bi in 3 weeks. | (44) 16 x 0.6 gm. and 7 Bi in 12 mos. |
| (12) 3 x 0.6 gm. and 2 Bi in 3 weeks. | (45) 17 x 0.6 gm. and 16 Bi in 15 mos. |
| (13) 0.9, 0.9 and 1.2 gm. in 3 weeks. | (46) 18 x 0.6 gm. and 23 Bi in 11 mos. |
| (14) 4 x 0.6 gm. and 3 Bi in 1 mos. | (47) 11 x 0.6 gm.; 7 x 0.45 gm. and 8 Bi in 11 mos. |
| (15) 0.3, 0.9 and 2 x 1.2 gm. in 1 mos. | (48) 19 x 0.16 gm. and 20 Bi in 15 mos. |
| (16) 5 x 0.6 gm. in 5 weeks. | (49) 20 x 0.6 gm. and 40 Bi in 11 mos. |
| (17) 5 x 0.6 gm. and 8 Bi in 4 months. | (50) 15 x 0.6; 5 x 0.45 gm. and 8 Bi in 11 mos. |
| (18) 6 x 0.6 gm. and 5 Bi in 6 weeks. | (51) 18 x 0.6; 2 x 0.75; 1 x 0.45 gm. and 30 Bi in 2 yr. |
| (19) 7 x 0.6 gm. in 2 mos. | (52) 10 x 0.75; 11 x 0.6 gm. and 35 Bi in 3 yr. 11 mos. |
| (20) 7 x 0.6 gm. and 4 Bi in 6 weeks. | (53) 6 x 0.75; 15 x 0.6 gm. and 25 Bi in 2 yr. 5 mos. |
| (21) 7 x 0.6 gm. and 4 Bi in 7 weeks. | (54) 16 x 0.6; 7 x 0.75; 1 x 0.45 gm. and 30 Bi in 2 yr. |
| (22) 7 x 0.6 gm. and 5 Bi in 8 weeks. | (55) 26 x 0.6 gm. and 17 Bi in 2 yr. |
| (23) 7 x 0.6 gm., 1 x 0.45 gm. and 10 Bi in 4 mos. | (56) 29 x 0.6 gm. and 21 Bi in 9 mos. |
| (24) 8 x 0.6 gm. and 8 Bi in 8 weeks. | (57) 32 x 0.45 gm. and 32 Bi in 2 yr. 9 mos. |
| (25) 8 x 0.6 gm. and 5 Bi in 8 weeks. | (58) 23 x 0.45; 9 x 0.3 gm. and 43 Bi (0.5 c.c.) in 2 yr. 4 mos. |
| (26) 8 x 0.6 gm. and 20 Bi in 2 yr. 10 mos. | (59) 25 x 0.6; 8 x 0.75 gm. and 60 Bi in 5 yr. |
| (27) 9 x 0.6 gm. and 4 Bi in 18 mos. | (60) 48 x 0.6 gm. and 70 Bi in 2 yr. 2 mos |
| (28) 9 x 0.6 gm. and 9 Bi in 4 mos. | |
| (29) 9 x 0.6 gm. and 10 Bi in 8 mos. | |
| (30) 10 x 0.6 gm. and 30 Bi in 13 mos. | |
| (31) 11 x 0.6 gm. and 10 Bi in 4 mos. | |
| (32) 10 x 0.75; 1 x 0.6 gm. and 29 Bi 17 mos. | |
| (33) 11 x 0.6; 1 x 0.45 gm. and 10 Bi in 4 mos. | |

Most of these cases showed no retention at all, after having had the amount of treatment specified. A few showed very slight retention but always less than 5 per cent, which is not considered outside the range of normal.

Although no control liver function tests were done in the investigation of these sixty cases, it is unlikely that these cases would have shown any retention at any time during the course of treatment. The fact that at the time the tests were performed, there was no retention, and the results of the other thirty cases, support this view.

MacCormac and Dodds (7) in 1923, using seven different liver function tests on 57 patients, concluded that the methods of treatment employed at that time (novarsenobenzal) were not liable to cause hepatic injury. In cases with complications they were able to find evidence of liver damage.

Schamberg and Brown (8) conclude there is no relationship between the incidence of hyperbilirubinaemia and the number of injections given. MacJunkin (9) claims that therapeutic doses of arsphenamine do not add to the hepatic injury in a liver already involved in an acute necrotic process. In spite of this the results of the examination of 8 cases of death following injection of salvarsan reveal that the liver is very much damaged and Turnbull concludes that the liver condition is not secondary (10).

From this series the conclusion reached, is that therapeutic doses of neosalvarsan and bismuth do not tend to cause liver damage. However, cases with complications in the course of treatment might show some retention. In this series such patients were not seen.

Thirty cases were followed up from beginning of treatment. They showed insufficient retention of the dye to suggest liver damage.

Sixty other cases undergoing treatment for syphilis had liver function tests performed on them. They represent various stages in the course of treatment. None of them showed enough retention of the dye to indicate liver damage.

Several dogs were given comparatively very large doses of neosalvarsan, sulpharsphenamine and salvarsan. In some of these retention of bromsulphalein was demonstrated but not so much as with chloroform anaesthesia of 45 minutes' duration.

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 - (2) Rosenthal, S. M.; and White, E. C.; *J. Pharmacol. and Exper. Therap.* 24: 265 (Nov.) 1924.
 - (3) *J.A.M.A.* 84: 1112 (April) 1925. Rosenthal, S. M.; and White, E. C.
 - (4) Permanent standards with comparator box may be obtained from Hynson, Westcott and Dunning, Baltimore.
 - (5) *J.A.M.A.* 82: 547 (Feb.) 1924. Bloom, W. and Rosenan, W. H.
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 - (9) Effect of Arsphenamine on the Injured Liver (Experimental) MacJunkin, A.; *A. J. of Syphilis*, 365 (May 14) 1928.
 - (10) Results of Examination of Tissues from Eight Cases of Death following Injections of Salvarsan.
Turnbull, 1920; *Med. Research Committee, Spec. Rep. No. 55.*

Extrapleural Pneumothorax*

V. D. SCHAFFNER,

Surgeon to the Nova Scotia Sanatorium.

SOME few weeks ago Dr. Collins wrote me asking me to present a paper at this meeting, and suggested extrapleural pneumothorax as a subject. I readily accepted his suggestion, as so little is known of it, that naturally, little would be expected of me. However, this new procedure has opened up such a large field in the collapse therapy of pulmonary tuberculosis that it certainly deserves our every consideration here. I say "new" procedure. It really is not. According to some records that I have been able to find, it was first used by Tuffier in 1910. On account of technical difficulties and complications, it was abandoned until 1935, when it was again brought into use by Graaf and Schmidt.

Since then it has been used quite extensively by these surgeons. Up until the latter part of 1937 they had performed the operation on some 300 patients. At Brompton, Roberts and his associates have done quite a number. They reported on their cases at the meeting of the American Association of Thoracic Surgeons held in Atlanta last April. If my memory does not fail me, the number was somewhere around 50. The publication† of this report has not yet appeared. Overholt and Churchill have done a lesser number, and here and there over the country a few have been done. It is to be seen at once that there has been no great experience with this procedure, as there has in other forms of collapse therapy.

At the Nova Scotia Sanatorium we refrained from using it until the early part of this summer, largely on a theoretical basis. From what we could gather, it seemed very similar to the old wax pack, except air was now being used instead of wax, and we all know the history of wax pack when taken by and large. However, after listening to the presentations at Atlanta, it occurred to the writer that there was quite a considerable difference, especially in regard to the type of case the operation is applied to.

Let it be said now that what I have to say regarding the procedure is not based on a large personal experience (for we have done very few), but is rather of a theoretical nature, and my opinions concerning it may be entirely changed within a year, as the number of cases operated upon accumulate.

I wish to make it clear at the outset that we do not regard it in any way a substitute for any of the other forms of collapse therapy, and that is, as far as I can gather, the opinion of those who have had greater experience. In particular it is not to be used in those cases where thoracoplasty is applicable. This will be taken up more in detail when the indications and dangers are discussed.

As you know, the procedure consists of creating a space between the parietal pleura and the thoracic fascia, and maintaining that space by air injections in the same manner that an ordinary intrapleural pneumothorax

*Read before the Annual Meeting of the Maritime Tuberculosis Association, September, 20, 1938.

†Recently Appeared in August Issue *Journal Thoracic Surgery*.

is maintained. The space created is just sufficient to collapse the diseased area and the remaining good lung is left to function. From a perusal of the meagre literature, it would seem that some operators have been creating extrafascial, rather than extrapleural spaces, and it is in these cases that the majority of complications are reported, especially that of obliteration of the space due to air loss. Such would be expected. Quoting from an article by Monod, he states "Separation of the parietal pleura is performed in the same manner as in all cases of apicolysis." If he refers to the apicolysis done in conjunction with thoracoplasty, it is quite different from the real extrapleural separation. Extrapleural separation is, as it says, separation between the parietal pleura and fascia. Apicolysis separation is outside this, that is, between the fascia and intercostal muscles, and ribs, and is much more difficult on account of the strong fascial bands at the apex, and probably more difficult to maintain.

Until experience accumulates, we have to make more or less of a guess as to just what type is suitable for the procedure. The early results at our Institution will probably not be too brilliant, because at the present time we are picking largely the far advanced, usually bilateral cases, in a rather soft and progressive state of disease, to whom we can offer no other form of collapse therapy. The future for the most of these cases also would, in a large measure, appear hopeless without some collapse control of the disease. Doubtlessly we will extend the indications to more hopeful and less far advanced cases as time goes on.

In the first place it might be wise to indicate briefly some of the types in which we think the procedure should not be used. First, in regard to unilateral adherent cases, I think you will all agree that it should not be used in those cases where a phrenic operation will probably do just as well. It is a more major procedure and subject to more complications. To be more specific, it should not be used in the relatively limited apical infiltration or in cases in which cavity is not larger than 3 cm. or thick walled. We know pretty definitely that a phrenic will aid such disease and probably close such a cavity. A temporary phrenic should most certainly be given a trial. In regard to non-adherent lung where ordinary pneumo is possible, it probably is to be preferred to extrapleural operation, but one cannot be so definite concerning this, especially if there exists some disease in the opposite lung. There are many points in which extrapleural pneumothorax is superior, or at least would seem to be, to intrapleural. Two to be mentioned at the present time are absolute selectivity and the maintenance of maximum vital capacity.

Certainly it is not to be used in the older, more fibroid cases where a good result from thoracoplasty is almost assured. In our opinion it is in no way a competitor of thoracoplasty.

In regard to positive indications, we believe that it should be used in the more advanced, softer lesions, in which the pleural space is obliterated by adhesions. The disease itself is not too stable and may be advancing. The patient's resistance is definitely not the best. If after a period of extrapleural pneumothorax treatment, the patient becomes stabilized, and the disease placed in a more fibrotic state, a thoracoplasty can readily be substituted, if permanent collapse is considered wise.

There are also cases of large apico-mediastinal cavity in which cavity closure is doubtful by thoracoplasty, in which extrapleural pneumothorax should first be instituted and maintained for a period, and followed later by

thoracoplasty. It might be argued that in these cases, thoracoplasty with apicolysis accomplishes the same result and does away with supplementary treatment. However it is the feeling, of at least some of us, that the lung has a tendency to again extend upward, with a consequent degree of re-expansion after apicolysis, before the chest has become hardened. In extrapleural pneumothorax followed by thoracoplasty, it should become so stabilized before the thoracoplasty is done that this should not occur.

The treatment of far advanced bilateral cases has always been more or less of a hopeless task. It seems quite probable that it is with these cases that extrapleural pneumothorax will find its greatest field of usefulness. At any rate it is the type of case that we are now chiefly selecting for it at our Institution. We all see quite a number of cases in which the disease on one side is quite suitable for thoracoplasty, but on the other side there exist areas of softer and more recent and active disease which contra indicates the thoracoplasty until this is brought under control. If this contra-lateral disease is rather limited and the pleura is free, an ordinary pneumo of 20 or 30% may be given and the operation proceeded with at a time it seems most opportune, —often within one month from the time the pneumothorax is instituted. We have followed such procedure on quite a large number of cases, with no serious regrets. If on the other hand this contra-lateral disease is so extensive that a rather large pneumo is required, thereby reducing the vital capacity to a dangerously low level for operative procedure on the other side, extrapleural pneumothorax at once becomes the method of choice. Also in certain cases of more limited disease in the contra-lateral lung, the pleura may be adherent, preventing ordinary pneumo. Here again the extrapleural operation is indicated.

There are also many cases of far advanced, soft bilateral disease where thoracoplasty is contra-indicated on either side for various reasons. Intrapleural pneumothorax is not feasible, either on account of adherent pleura or on account of marked reduction in vital capacity incident to the excessive collapse necessary to control the disease. It is with this particular group that we should do our best work with extrapleural pneumothorax, and patients should be salvaged by the bilateral operation who heretofore had little or no chance of recovery. There is little to be lost and much to be gained by its application.

This roughly covers the indications as we see them to-day. They may be broadened or narrowed in the future.

Comparing intrapleural and extrapleural pneumothorax, the latter has certain definite advantages over the former. In the first place, it is absolutely selective. The diseased lung, and the diseased lung alone, is relaxed, leaving all good lung to function. In the second place it is to be preferred in those cases of rather extensive bilateral disease where the maintenance of a maximum vital capacity is necessary. It is quite easy to collapse the upper half of both lungs, leaving the bases to carry on the function of respiration. In ordinary pneumothorax, as you know, collapse of good and bad lung usually occurs together and the same result cannot be achieved.

There are certain definite dangers connected with the operation which cannot be taken lightly. We believe that it should be undertaken only by those surgeons who are constantly doing a large amount of surgery for pulmonary tuberculosis. There is the danger of haemorrhage into the space created, but I believe this to be slight. There is always a very slight amount

of oozing due to the separation, but as no large vessels are severed, massive haemorrhage should not occur. However, on the mediastinal side separation has to be made from the subclavian and great vessels. It is quite possible to wound any one of them with massive and fatal haemorrhage, but with due care, proper instruments, and good illumination, this should not occur. These vessels are not exposed to greater danger than are the subclavians in apical thoracoplasty. In the second place, primary shock seems to be a rather marked feature. Although the operation is of short duration (it should not take more than 20 minutes), it produces more shock than thoracoplasty. This, in any event, has been so in our cases. This is probably due to the fact that over the cupola of the pleura there spreads out a rather extensive sympathetic plexus, which of necessity is greatly disturbed at the time of operation. Pain following the operation has been a rather marked feature in our cases and is ever so much more marked than in thoracoplasty.

The danger of tuberculous infection of the pneumo pocket would appear, on theoretical grounds, to be rather great. How often it will occur, remains to be seen. As you know, there is an extensive set of lymphatic channels coursing up the mediastinum just under the pleura to the various mediastinal glands. These lymphatics are torn across when separation of the pleura from the mediastinum is accomplished. There is a set of glands, usually three in number, situated just at the very apex of the lung on the mediastinal side. In doing apicolysis we have frequently removed these at the time of operation for pathological examination, and found a high incidence of tuberculous infection in them. This confirms that we have opened up tuberculous lymphatics and probably liberated tubercle bacilli into the wound. However, specific tuberculous infection has not occurred except possibly in one case where a subscapular abscess did develop and has not yet completely healed. It has not been proven to be tuberculous as it contained secondary organisms.

Another danger of the operation is that of pleural tears with a sudden massive intrapleural pneumothorax. Of course this danger does not exist in those cases where the pleura is adherent and probably is of no great significance, even if it occurred, except in those incidents where there exists some form of extensive collapse therapy on the opposite side. In such cases the vital capacity might be so suddenly and markedly reduced that the patient would die immediately of suffocation. I will show you a case later where, if such accident occurred, it would almost surely be fatal.

The last great danger to be mentioned is that of tearing into a large cavity with massive contamination of the wound. In some cases the cavity is not more than $\frac{1}{4}$ " away from the pleura being separated and as the tissue is very soft and friable, this danger is a very real one. In one of our cases separation was done over a very large cavity with a thin wall. The thinness of the wall could be realized easily throughout the entire procedure. When completed, the wall's collapsed and the cavity obliterated, and it now felt like the crater of a stomach or duodenal ulcer. In these large, peripheral cavities, extreme care must be exercised.

Finally, just a word in regard to technique. I will not trouble you with the details of the operation, but rather mention some of the main points of procedure. Various incisions are made to approach the thoracic cage. At our Institution we use a rather liberal one and I think different from the skin and muscle incision used elsewhere. It consists of a short posterior thoracoplasty incision around the vertebral border of the scapula. The muscles are

cut across rather than separated, and the scapula retracted laterally, to allow of good exposure. A liberal portion of the fourth rib, that is, about 3", is removed subperiostially from the angle forward. This allows of a later easy manipulation of the fingers and hand within the created cavity. The intercostal muscle is separated from the side of the periosteal bed, and this separation carried through the thoracic fascia down to the parietal pleura. This is gently pushed forward until a saucer-like cavity is created between the pleura and chest wall. If the right layer is entered, separation is easily and quickly carried out. This separation is continued with the finger, gauze on forceps, and Overholt illuminated retractors. It is carried over the apex and down the mediastinum and on all sides. It is carried downward on all sides until the lower level of the disease is reached. Care must be taken to separate well down on the mediastinal side so that a proper collapse may be obtained. Care must also be exercised that tongues of lung are not left extending upward on the various aspects of the chest wall, as these may be punctured by needles during the course of subsequent refills.

Separation to the desired level being completed, there remains only the necessity of maintaining the collapse and closing the wound. The methods for this differ. In most clinics the wound is simply closed as tightly as possible and refills started in two or three days. At our Institution we fill the created space completely with saline and close the wound tightly. Some of the saline is aspirated on the second or third post-operative day and replaced with air. This aspiration and replacement is continued every second day until complete. This method, I believe, was originally used by Overholt.

In my opinion it has certain definite advantages over merely leaving the space filled with air. In the first place, it precludes all possibility of a subcutaneous emphysema due to the leakage of air through the wound. When air is injected in two days the wound is sealed well enough to hold it. In the second place, saline escapes with greater difficulty than air, and the danger of immediate re-expansion is less. Saline acts as an excellent splint to the lung and cuts down paradoxical respiration and trauma to the lung apex. Oozing of serum and some blood into the cavity is inevitable. This is easier to remove when mixed with saline than if it were allowed to clot at the bottom of the cavity.

Ophthalmology in General Practice*

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IN bringing before you this paper I aim not at presenting a mass of scientific detail on the subject of Ophthalmology but rather at reviewing with you a few salient features which may be helpful as factors in diagnosis.

The term Neuro-Ophthalmology might well have been a better heading for this paper as I intend to deal with conditions and symptoms present in the eye or having some relation to the eye and at the same time fundamentally related to disease of the central nervous system.

We shall therefore review very briefly the anatomy of the nervous system of the eye and in part the brain in order that we may refresh our minds with the picture and be able to appreciate more readily the observations that are to follow.

The Brain.

From before, backward and downward we have the cerebral hemispheres and the basal ganglia, the mesencephalon made up chiefly of the crura cerebri, but containing also the corpora quadrigemina, the internal and external geniculate bodies and the superior and inferior brachium these latter having very important connections with the optic tracts. The mesencephalon is tunnelled by the sylvian aqueduct leading into the fourth ventricle. Here we come to the pons and medulla which are joined to the cerebellum by the superior, middle and inferior peduncles. The pons constituting the upper part of the floor of the fourth ventricle.

The Nerves of the Eye.

The Optic Nerve begins in the retina and continues backward to the chiasma where partial decussation takes place, most of the nasal fibers crossing to the other side. From here it continues backward as the optic tract to its ganglionic centers in the optic thalamus, the external geniculate body and the anterior corpora quadrigemina and it is here that it gives off that important connection with the third nerve nucleus, which constitutes one link in the pupillary reflex arc. From these ganglionic centers the tract proceeds to its cortical centers in the occipital lobe.

The Third Nerve arises from a complicated nucleus in the floor of the aqueduct of Sylvius and passes forward through the outer wall of the cavernous sinus to supply: the sphincter pupillae, the ciliary muscle and all the muscles of the eyeball except the superior oblique and the external rectus. It also supplies most of the fibers of the levator palpebrae superioris.

The Fourth Nerve begins in a nucleus situated in the lower part of the floor of the aqueduct of Sylvius and runs to the roof of the fourth ventricle where it decussates with its fellow of the opposite side, winds around the outer side of the crus and runs forward in the outer wall of the cavernous sinus to supply the superior oblique muscle.

The Sixth Nerve arises from its nucleus in the floor of the fourth ventricle where it lies in close connection with the facial and after running through the

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pons emerges from between the pons and medulla to pass forward in the wall of the cavernous sinus to supply the external rectus.

The *Cervical Sympathetic* sends in a branch to supply the dilator fibers of the pupil and also a branch to the unstriped fibers of the *museculus orbitalis*,—Mueller's muscle which has just sufficient action to wrinkle the upper lid.

The Examination of the Patient.

We come now to the examination of the patient confining ourselves to our observations on the eyes. Observe whether or not there is crusting or scaling of the edges of the lids, a condition known as marginal blepharitis and usually points to the urgent need for correction of refractive errors. In neglected cases the lashes are often entirely absent.

In elderly people there is often an excessive amount of tearing with the lower lid partially or even completely everted—Ectropion, or the upper and lower lid as well, may be inverted—Entropion, the lashes irritating the cornea helping to cause ulceration and keratitis with great diminution of vision. The sooner these conditions are corrected by operative methods, the better for the patient.

Is there a discharge? If so, is it muco-purulent, or watery? A muco-purulent or purulent discharge is associated of course with some infection in the conjunctival sac or its adjoining parts as, for example, the tear sac. The best way to determine the nature of the infection is by smear or culture. A watery discharge is usually indicative of a foreign body in the eye or of deep seated inflammation such as iritis.

At this stage I should like to dwell on one point that from my observations leads me to believe that it needs special emphasis, and that is, the differential diagnosis between Acute Iritis and Incipient Glaucoma. Of course in the well established case of Iritis or Glaucoma there is not much difficulty in arriving at a diagnosis if one takes into account the classical symptoms presented. But it is the early manifestation of these lesions that often confuses the practitioner and frequently leads to the wrong treatment, too energetic a method of treatment or no treatment at all.

In a given case the patient presents himself with an inflamed eye. There may be excessive tearing and sensitivity to light. There is marked ciliary injection and congestion of the conjunctival vessels. The pupil may be contracted or slightly ajar. He complains of headache and more or less severe pain in the bones of the orbit and usually worse during the early morning hours. Our first thought would most likely be, this is Iritis and treatment for the supposed Iritis might well prove disastrous. How then shall we determine whether we are dealing with Acute Iritis or Incipient Glaucoma?

We may get a valuable clue by touching the center of each cornea in turn with a fine whisp of cotton. The cornea in Iritis is nearly always more sensitive, that in Glaucoma slightly anasesthetic even in the mildest types. Try to elicit information regarding vision. If he tells you that he frequently has spells when vision seems dim it is evidence in favor of Glaucoma.

Next instill into the conjunctival sac a drop of 2% euphthalmine repeated every five minutes for three doses and wait for twenty minutes. If no reaction occurs, next use a 2% solution of homatropine in similar fashion. If this fails to dilate the pupil then combine the 2% homatropine with 4% cocaine and repeat every five or ten minutes until the pupil either dilates or refuses to do so. The homatropine and cocaine usually dilate the pupil within twenty min-

utes and these together with euphthalmine can be counteracted by eserine. If the pupil has not dilated at the end of two hours then instill 1% atropine at once. If under either homatropine or atropine the pupil dilates sluggishly, imperfectly or unevenly and if furthermore when the dilatation is finally effected the pain and photophobia are relieved, the diagnosis of Iritis is confirmed. If on the other hand dilatation does occur with homatropine or euphthalmine but the pain and photophobia are unaltered or increased, you must instill at once a 1% solution of pilocarpine or $\frac{1}{2}$ % solution of eserine or a combination of these.

Elliot stresses the fact that the only treatment of any value in Acute Inflammatory Glaucoma is an immediate operation when diagnosis is established. Operation is also the sheet-anchor in the chronic inflammatory types. In the chronic non-inflammatory types, although not accompanied by such marked success it is the only method of treatment that holds out any hope whatsoever of preserving sight.

It may be of interest to note that cocaine acts by stimulating the sympathetic nerve endings in the dilator muscle of the Iris and not by paralyzing the sphincter, hence only a moderate dilatation of the pupil is produced by cocaine alone. It can therefore be used in confirming the diagnosis of paralysis of the sympathetic nerve, for if it is so paralyzed the cocaine will fail to produce dilatation of the pupil.

You will observe whether or not he has Ptosis. A large amount of drooping of the upper lid is most likely due to disease of the third nucleus. A small amount to paralysis of the sympathetic. Next observe whether or not he has a squint. If so is it Paralytic or Concomitant? In paralytic squint when the patient looks straight in front of him, in all probability, no deviation will be seen. Then ask him to look to the right or left, up or down when it will be seen that the squint is greater when the eye tries to move in the direction of the paralyzed muscle's field of action. In concomitant squint, when he gazes straight before him, the deviation is evident and the squinting eye follows the sound eye in every movement always deviating the same amount. In paralytic squint there is usually diplopia. In concomitant squint he rarely if ever has diplopia. There are other more searching tests but the above will serve roughly to diagnose the type of squint or strabismus.

Nystagmus.

Nystagmus is the term applied to a condition characterized by an involuntary, rapid movement of the eyeballs. The movement may be horizontal, vertical, rotatory, or mixed. According to the character of the movement we designate two chief types of nystagmus, namely:—

1. The undulatory form in which the movements are to and from like a pendulum.
2. The rhythmic form in which a comparatively slow movement in one direction is followed by a rapid return movement in the opposite direction—the slow and the quick component.

Nystagmus may be congenital or acquired and is bilateral in the majority of cases. It may be unilateral however and is then usually in a vertical direction and associated with Cerebellar disease.

Congenital nystagmus is associated with defective construction of the eye and is common in albinism and in color blind persons with central scotomas. It occurs with opacities of the media and certain destructive lesions of the

retina. This type of nystagmus is not to be confused with the wide searching movements of eyes that have been blind since birth.

Pseudonystagmus, usually bilateral, is a term applied to jerky movements which are seen when one or both eyes are rotated near to the limit of their excursion in one or the other direction and probably depends upon fatigue of the muscles. It can however be developed in various nervous diseases especially Friedreich's Ataxia and Multiple Sclerosis. A true nystagmus is also frequently present in these diseases.

There is a form of hereditary nystagmus extending through several generations and commonly associated with head movements.

Acquired nystagmus may be brought about through the pursuit of certain occupations which cause undue visual strain and especially when the eyes are kept in an unusual position for a long time and in a dim light. The most outstanding example of this type is Miners' nystagmus and there is little doubt that the chief factor in its causation is deficient lighting. Errors of refraction increase the liability to nystagmus.

True nystagmus, according to Duane depends upon a perversion of the centers for parallel and parallel rotatory movements and not upon peripheral muscle or nerve lesions.

Nystagmus is common in diseases of the nervous system, and is associated with many lesions of the brain. It has also been noted with great frequency in tumors of the cerebellum.

Vestibular nystagmus is perhaps the most outstanding and classical example of true nystagmus and may be horizontal, vertical or rotary. It consists of the slow and the quick component and is most intense when the eyes are turned in the direction of the quick component and diminished when they are turned in the direction of the slow component. This type of nystagmus is an interpretation of vestibular disturbance and can be readily induced by the caloric test, rotation movements, or galvanic stimulation. These latter tests, let it be noted, are of vast importance from an otoneurologic standpoint and of great value in examining candidates for the aviation corps. The tests have outstanding merit in the localization of intracranial lesions. But to go into this field more minutely would require a special paper.

To recapitulate briefly regarding this important symptom:—Nystagmus is either Spontaneous or Induced.

Spontaneous—Ocular.

Labyrinthine disturbance—Acute Labyrinthitis.

Cerebellar or Central —Lesions.

Induced—Vestibular when brought about by the Caloric Test, Rotation, Galvanic or Fistula Tests.

In the ocular nystagmus of Albinos, for example, the movement is undulatory—to and fro and is not altered by changing the position of the patients head.

Ocular nystagmus is always rotatory.

Vestibular nystagmus is nearly always rotatory. It is horizontal when dealing with the horizontal semi-circular canal.

Central nystagmus is nearly always rotatory.

Now in spontaneous vestibular nystagmus such as in acute labyrinthine disease the tendency is to get better from day to day as the lesion improves, but central nystagmus increases from day to day as the lesion progresses. Central nystagmus is rhythmic in character but is not influenced by abduction.

In vestibular nystagmus the direction in which the patient tends to fall has a distinct relation to the direction of the nystagmus. He tends to fall in the direction opposite to the quick component and direction of falling can be changed by changing the position of the patient's head. In central nystagmus which is due to disease of the cerebellum he usually falls towards his lesion and not necessarily opposite to the direction of the quick component. These points serve therefore to differentiate between a vestibular and a cerebellar nystagmus.

The Pupil.

Observe next the pupils. Are they symmetrical? Inequality of the pupils is usually always pathologic and may be due to adhesions of the iris, congestion of the blood vessels of the iris, an increase in tension or to paralysis of the fibers of the third nerve that supply the sphincter pupillae.

Do the pupils react to light? Ask him to gaze across the room under conditions of ordinary lighting and after allowing a few seconds to elapse, throw a strong beam of light upon the pupil and note the reaction. Also when illuminating one pupil watch the other to see if the consensual reaction is normal. If so it is presumptive evidence that the lesion if one exists is not in the optic tract below the point where the light reflex fibers are given off to the third nucleus. That is it must be above the anterior corpora quadragemina and external geniculate body.

Paralysis of the Muscles of the Eye.

In considering paralysis in relation to the muscles of the eye we must of course bear in mind the innervation. If the sixth nerve is affected the external rectus is involved and he is unable to turn the eye outward. If the fourth is affected it causes paralysis of the superior oblique and he is unable to turn the eye downward and outward.

If he is unable to turn the eye upward, downward or inward or if there is paralysis of accommodation and convergence or if there is a marked ptosis, the third nerve is involved.

If there exists a paralysis of the dilator fibers of the iris with perhaps a moderate amount of ptosis then the sympathetic is at fault.

All paralyzes of ocular muscles are either orbital or intracranial. The orbital types are due to a lesion in the nerve trunk and its branches beginning from where it enters the orbit through the superior orbital fissure to its termination in the muscle.

In the intracranial types of paralyzes the lesion may be in the higher centers, that is above the nuclei. These regions are termed the intracerebral tracts and are composed of the cerebral cortex, the association centers and the fibers connecting these with one another and with the lower centers or nuclei. It is of great diagnostic importance to note that lesions in this area never cause paralyzes of individual ocular muscles, with the possible exception of ptosis. Lesions of these higher centers always cause conjugate paralyzes. The eyes are unable to turn in some special direction or they cannot converge. They may be drawn to the opposite side by spasmodic contraction of the antagonists.

Lesions involving the centers of lower rank, that is the nuclei on the floor of the aqueduct of Sylvius or of the fourth ventricle usually produce paralyzes of several ocular muscles. Thus we have developed what is known as central ophthalmoplegia. This nuclear paralysis is as a rule, bilateral

because the fibers from each oculo-motor nucleus go to both eyes and the lesion though unilateral must also make its appearance in the muscles of both eyes. The ptosis in comparison with the complete paralysis of the other muscles is often very slight. In most cases the interior muscles of the eye—those of the pupil and accommodation are not involved in the paralysis. It is therefore an ophthalmoplegia externa and the lesion is generally in the nerve nuclei. If there is an ophthalmoplegia totalis, that is, one in which all the muscles are paralyzed without exception, the situation of the lesion may vary. In a bilateral ophthalmoplegia we may be dealing with a nuclear paralysis, while in unilateral ophthalmoplegia totalis the lesion is usually in the nerve trunk at the base of the brain or it may be within the superior orbital fissure.

Now as most cases of ophthalmoplegia are due to an affection of the gray substance of the nuclei, the nature of its origin is similar to that of Bulbar Paralysis which attacks the motor nuclei situated farther down, that is to say, the facial, glossopharyngeal, hypoglossal and spinal accessory nuclei. It is evident, therefore that an ophthalmoplegia may be associated with a Bulbar Paralysis.

Ophthalmoplegia may be acute or chronic. Acute when due to some form of poisoning or the result of acute infectious diseases. Chronic when due to a gradual degeneration and atrophy of the gray substance. In the chronic type the most frequent cause is syphilis. It also occurs in tabes, progressive paralysis, disseminated sclerosis, myasthenic paralysis and exophthalmic goiter.

Ophthalmoplegia Interna where the sphincter iridis and ciliary muscle are paralyzed, is a frequent sign of cerebral lues and occurs also in the early stages of tabes and general paralysis of the insane.

Fascicular Paralysis is due to a lesion of the fibers between their point of departure from the nerve nuclei and their emergence at the base of the brain. This may be diagnosed if there is a paralysis of the oculo-motor nerve of one side with simultaneous paralysis of the extremities of the opposite side—crossed paralysis. In this case we must assume the lesion to exist in the lower part of the oculo-motor nerve as it passes through the peduncle, and also in the pyramidal tract. The oculo-motor nerve is therefore paralyzed on the same side but as the pyramidal tract crosses over below this point the extremities are paralyzed on the opposite side.

In a similar fashion a crossed paralysis of the extremities and the abducens or sixth nerve points to a focus of disease in the posterior part of the pons or in the portions of the base of the brain adjoining it.

Lesions at the base of the brain usually affect more than one nerve though one nerve only may be involved. It is common to have a whole series of cerebral nerves on one side involved one after the other. It should be pointed out that in paralysis of the trigeminus if it begins as a neuralgia, and ends in paralysis it is indicative of a lesion at the base of the brain as neuralgia never occurs with a paralysis of the trigeminus, of central origin.

In the early stages of paralysis of the trigeminus, very often the first symptom is anaesthesia of the cornea.

Homonymous hemianopia occurs both in affections at the base of the skull through implicating the optic tract, and also from lesions situated higher up. Hemianopia from involvement of the tract is rare, however, and should be assumed to exist only when there are other factors that argue the existence of a basal affection.

Scarlet Fever in Everyday Practice*

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SCARLET fever is a common disease and a dreaded disease. This communication is the result of clinical observation made at the bedside in a country practice as relating to approximately 1,200 cases of this disease.

Sajou defines scarlet fever as "an acute infectious contagious, eruptive disease presenting in typical cases the following features: after a period of incubation of from two to four days there is a sudden onset of sore throat, vomiting and fever; within twenty-four hours a characteristic eruption appears and continues for about six days, when it terminates in desquamation." The length of the incubation period, commonly stated as from two to four days, has been the subject of much controversy. A longer incubation period of from four to twenty days is more in accord with my observations, an average probably being ten days.

The symptoms vary greatly in different cases, from the very mild to the malignant. The very mild cases would not have been diagnosed if the patient had not been known to be in contact with the disease. This type of case constitutes a fine "carrier", especially if the first person in a household to develop the disease suffers a mild attack. Such a case may show malaise and slight sore throat, staying in the house for a day or two and then returning to school, thus spreading the infection. It is not so with severe cases. They are readily recognized: the initial vomiting, sore throat, strawberry tongue and eruption are typical. The malignant and haemorrhagic cases are also less important in spreading infection than the mild, missed cases. The seriousness of the illness necessitates prompt medical attention.

In a disease with symptoms so varied, atypical cases must necessarily occur. One symptom, however, that is always present is soreness of the throat. I believe that all other symptoms may be absent. Yet in this mild case of what appears to be only a sore throat, you have a case of the disease, a carrier of infection, and a subject for sequelae, sometimes severe. These atypical cases, to my mind, convey infection in a great number of instances where the disease is supposed to have been transmitted by external objects. Kerly, in the *American Journal of Diseases of Childhood*, said: "Many cases of scarlet fever are so atypical as to go unrecognized until a sequela makes its appearance. It is a disease of direct infection; it is rarely carried by a second person or object. The most contagious period is early in the disease during the period of angina, rash and temperature; therefore the danger of transmitting the disease during the desquamation period is much exaggerated." Yet in Sajou's "Encyclopaedia of Medicine" we read this: "The contagion clings to rooms with great tenacity, being usually lodged in the wall-paper or in cracks of the walls, ceilings and floors." This must of necessity be in very filthy places. However, you can generally look for the source of infection in a person.

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The diagnosis so readily made when you see a typical rash is not so easy, in everyday practice, when you miss the rash and have to decide upon the nature of a disease, having only the sequelae and the history. Again, in many instances, people not wishing to be quarantined may not give you a correct history of the onset of the disease.

Complications and Sequelae.

In my practice, I have been struck by the variety of sequelae you may encounter in scarlet fever: angina, otitis media, adenitis and cellulitis, joint lesions, pneumonia, and, the most dreaded of all, nephritis with convulsions, high blood pressure and even cerebral haemorrhage. These have to be diagnosed and treated as they arise, but they may arise in a very obscure manner, or they may be the first evidences of the infection. The following experience illustrates this problem: I was called to see a boy, ten years old, because he was dull, sleeping most of the time, and very apathetic. He had very little fever; the pulse, heart and lungs were normal. He looked a little pale. Urinalysis showed marked albuminuria. On questioning it was found that the quantity of urine was only four ounces in twenty-four hours. I could not obtain a history of the occurrence of any rash. He had been on ordinary diet and had had baked beans before the drowsiness developed. The diagnosis was nephritis with a suspicion of scarlet fever, for there had been cases in the neighbouring village. A few days later the boy's grandmother, a woman 62 years of age, developed tonsillitis which lasted a few days. No rash was seen in her case but three weeks later the patient, who previously had a systolic pressure of 160 mm., developed an acute nephritis. Although the blood pressure attained only 180 mm., she suffered a cerebral haemorrhage with resulting hemiplegia and was an invalid for the remaining six years of her life. I had not diagnosed scarlet fever at the time of the hemiplegia, but on the following day I was called to see a girl who had been working at this house and who had left on account of slight indisposition. She presented a scarlatinal rash. Thus my diagnosis were confirmed in a retrograde manner, both cases of nephritis being due to scarlet fever. Nephritis is often seen in the mild cases as well as in those which are severe from the outset.

It is now generally said that the very severe haemorrhagic cases are extremely rare, but small haemorrhages frequently occur in moderate or severe cases. Changes in the blood due to the haemolytic streptococcus might possibly favour the development of such haemorrhages. A loss of red blood cells and a reduction in haemoglobin have been noted by many observers, the anaemia continuing for a number of weeks. A tendency to haemorrhage would not be surprising. Cases of nephritis always show blood in the urine and bleeding from the mucous membranes is common. I have mentioned the case of a woman of 62 years with cerebral haemorrhage whose systolic pressure was only 180 mm. I have had only two fatal cases in fifteen years' practice and both of these died from haemorrhage, one a boy of five years from haemoptysis. True, his mother died of tuberculosis but no lung lesion in the child had ever been found and fatal haemoptysis at this age is certainly rare in other circumstances. The other boy was also five years of age and died from haemorrhage following the bursting of what appeared to be a peri-tonsillar abscess. The haemorrhage was so profuse that death occurred within a few seconds. This is in accord with a report of fifteen cases of haemorrhage from the blood vessels of the neck during scarlet fever. In these cases a diffuse

phlegman originated in the suppurating lymph nodes and then spread to the blood vessels in contact with the abscessed region. Ten of the haemorrhages were arterial in origin and five were venous.

Such complications, together with nephritis, are to be dreaded the most. In uncomplicated cases the prognosis is good and the death rate in scarlet fever has been markedly reduced in the last fifty years.

Prevention.

The chief measures for prophylaxis are isolation, removal of diseased tonsils and active immunization with scarlet fever toxin. The period of isolation of the scarlet fever patient is generally thirty-five days. I have released mild uncomplicated cases after three weeks and have never known of secondary cases. On the contrary, I have seen one case where a boy contracted the disease from his schoolmate seven weeks after the latter had the disease; this boy had diseased tonsils and was a carrier. It is therefore very hard to strike an average duration of isolation which is long enough for the child with diseased tonsils to be sent safely to school. It is not practical, on the other hand, to keep a recovered mild case from school for such a period when he could attend without danger to *others*.

In my experience the use of scarlet fever toxin has proved of very great value. A few years ago the disease broke out among the resident students of St. Ann's College. The boys were divided in two groups, young boys numbering fifty, ages 10 to 15, and an older group numbering sixty-seven, 16 years and older. The boys mingled together in several of the classrooms. The boys of the younger group being more susceptible, Dr. Doiron and I at once started immunization of this group. We also gave the course of immunization to ten of the older group who asked for it. Of those immunized, sixty in all, only one boy of the younger group developed a mild form of the disease after the second injection. We feel certain that the use of scarlet fever toxin prevented a general epidemic in the college.

As previously stated, removal of diseased tonsils and active immunization with scarlet fever toxin are the principal prophylactic measures. Much has been said about the transmission by scales during the period of desquamation, but when such transmission has occurred, the scales have been infected from the discharges of the nose or throat.

Treatment.

As for the treatment of this disease, it is symptomatic—mild antiseptics for the throat, particularly diluted hydrogen peroxide, being very useful. As nephritis is very common in the third week, all cases should be treated as potential cases of nephritis. I have seen very few severe cases of nephritis among those who were kept on salt-free diet, omitting red meats and giving plenty of fluids. Where all foods had been liberally given in mild cases that had not been seen by a physician, I have found patients in convulsions when first visited. In these cases I have used hot packs and diuretics, and measured the output and intake of fluids just as in the treatment of eclampsia. Fortunately, permanent damage to the kidneys does not seem to be as great as might be expected.

I have not used scarlet fever antitoxin in treatment, as the results have been good without its use.

My conclusions are that scarlet fever in recent years has not been as severe

as it used to be. It is probably due to the fact that we have a smaller proportion of infected tonsils and general hygienic measures are carried out more satisfactorily. The portal of entry seems to be the throat and through the discharges of the nose and throat the causative agent is transmitted to other persons. Mild, missed cases are a most important source of spread of the disease in a community. Patients recovering from the disease may be harbouring the causative agent for a considerable period, particularly if the tonsils are diseased. Haemorrhages are likely to occur in scarlet fever and may be fatal. The isolation period of thirty-five days can be shortened with safety in some cases and should be extended when sequelae are present. Active immunization with scarlet fever toxin is of definite value in the prevention of the disease. Every case is a potential case of nephritis and should be so treated as to minimize the occurrence of this sequela.

Typhoid Fever Carriers in Nova Scotia*

J. J. MACRITCHIE, M.D.

Divisional Medical Health Officer
Department of Public Health of Nova Scotia, Halifax

ONE of the greatest achievements of sanitation and preventive medicine is the marked reduction in the typhoid fever case and death rate throughout Canada. We in Nova Scotia have shared in that progress. Confirming this are the figures issued by the Dominion Bureau of Statistics from 1921 to the present, a period covering almost two decades and sufficient to demonstrate the value of any measures introduced for the physical welfare of the people. Before 1921, complete statistics are not available but the evidence of physicians whose medical and public health activities extend beyond the two decades is corroborative of a marked decline in the typhoid incidence. For the ten-year period 1922-1931 the average annual death rate from typhoid fever was 17.9 per 100,000 population. For the five-year period 1932-1936 the average rate was 4.2, the lowest of any province in Canada and slightly less than that of British Columbia, a province which has always enjoyed a low rate. This fall in the rate reflects, at least in part, effective public health efforts embracing the safeguarding of water, milk, and food supplies, and the sanitary disposal of sewage. With reference to the latter, Nova Scotia has been endowed with most excellent natural facilities for such disposal. A coastal province, our largest population-centres have direct sewerage outlets into deep harbours that open out into the Atlantic, and others not so situated have rivers that eventually find their way into the ocean.

In recent years we have not experienced any large or widespread epidemics of typhoid fever. Our reported cases, comparatively few, have been sporadic or endemic in character. In saying "comparatively few", I do not mean to leave the impression that we are bordering on the theoretical irreducible minimum or on the Utopian state, but merely to point out our recent fall in rates. What the future has in store for us, I cannot say. In a study of the possible source of infection in the minor outbreaks of the past few years, we eliminated water and food supplies as the transmitting agencies and centred our attention on carriers as being the cause. The results have justified this assumption. In the two-year period from April, 1936, to the present we have been able to detect and place under a degree of control eight residual carriers, making a total of twenty now listed in the Department of Health. In this short discussion I do not propose to deal with each one, but to mention three of the group, since I was personally interested in these cases. The three lived at different points within a ten-mile radius and during the preceding years 75 per cent. of the cases reported in the province were from this section. All three cases had had a cholecystectomy performed.

Case No. 1

In April, 1936, our attention was directed to a death from typhoid fever and the occurrence of four cases in a lumber camp. On investigation, we learned that the camp had been in operation for several years and that every

*Presented before a joint session of the Canadian Public Health Association (twenty-seventh annual meeting) and the Nova Scotia Health Officers Association, Halifax, N. S., June, 1938.

year or second year a mild outbreak of typhoid fever occurred, with one or two deaths. Although confirmation of the diagnosis could not be made, the clinical picture was that of typhoid. With the last outbreak, in which the foreman of the camp died, the camp was temporarily closed, a new well was opened, and a new privy built. Water from the old well, which was thought might be a causative factor, was bacteriologically examined, but the report was negative. Canned milk was used. It was noted that for several years the camp personnel had changed but slightly. The same cook was employed. It was evident therefore that a member of the camp was the probable source of infection. With the assistance of the physician attending the camp, specimens of faeces were collected for laboratory examination. Out of the group, one of the first five specimens examined was positive for *B. typhosus*. This specimen was from the cook—hence a probable explanation of the outbreaks. This cook, a very intelligent, willing and co-operative man, immediately gave up his position and went home. He was instructed concerning his personal habits in the protection of others and it was suggested that he might enter hospital for gall-bladder removal, in the hope that it would render him non-infective. This he readily consented to do. He underwent the operation and made a good recovery. He regularly sent specimens of faeces to the laboratory for a period of months and except for a few days following the operation, all were negative. It is rather surprising that this man gave no history of typhoid. It is possible that at some time or other he suffered an ambulant attack.

Case No. 2

Reports of typhoid fever in a power-dam construction camp came to us in September, 1937. Five cases were reported and of this number two died. The camp was located fifteen miles in the bush and was not readily accessible. Starting our investigation, we obtained a list of those employed in the camp for a month previous to the onset of the first illness. As in the investigation of case no. 1, water and food supplies were eliminated as possible causative factors. It was again felt that the source of infection was a carrier. Specimens, of faeces, two or three from each man, a total of about one hundred specimens, were obtained and sent to the laboratory. Of the group, one set of specimens was found to be positive and the donor was found to be the blacksmith. This man gave a history of having had typhoid fever nineteen years before. Later we concluded that he had been responsible also for a minor unconfirmed outbreak in another camp during the previous year. Thus in his wanderings he was responsible for two and probably three deaths. No investigation of the previous outbreak was possible, as the camp had been broken up before a visit could be made. He was advised what to do and, after due consideration, entered hospital for surgical treatment, which was carried out on January 4, 1938. The last laboratory report stated that no typhoid bacilli were found in the faeces.

Case No. 3

While investigating case no. 2, a local physician advised us of a case of typhoid fever under his care in a nearby community. The doctor stated that in this particular section he treated a case each year. The suggestion to make an enquiry was gladly accepted. This presented a different problem from that of cases 1 and 2, as there were no groups concerned. The plan adopted was to

get as complete a list as possible of those in the neighbourhood who had suffered from a typhoid illness and then cautiously approach these in the hope of obtaining faecal specimens. Instead of being balked at any point, we had wonderful co-operation and from some homes the residents came and offered to assist in every way possible. Before long a community carrier was detected. The carrier was a man who gave a history of a previous attack of typhoid illness. He was quite willing to avail himself of hospital treatment. Subsequent laboratory reports indicated that the removal of his gall bladder was followed by a disappearance of typhoid bacilli in the faeces.

These three histories serve to emphasize the importance of carrier detection in the control of typhoid fever. We have had carriers in the past and still have them with us, but not to the same extent. The carriers of past epidemics are gradually dying off, and with fewer present-day epidemics the fewer the potential carriers. It has been estimated by various writers that of the total of cases, from 1 to 10 per cent., or even 20 per cent., remain as carriers, some for only a short time and others for years. The typhoid carrier who is unaware of the fact that he is a carrier is a household and community menace. Each one discovered and controlled saves the community from what might be serious epidemics of the disease. As a community menace, one only has to recall the story of "Typhoid Mary". I would make a plea to all our practitioners and associates for more early, frequent and extensive use of our laboratory facilities for the confirmation of the diagnosis of typhoid fever. I desire to stress also the importance of determining whether a patient is becoming a carrier or not by the laboratory examination of specimens of faeces obtained at intervals during a period of at least six months.

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It is to be distinctly understood that the Editors of this Journal do not necessarily subscribe to the views of its contributors, except those which may be expressed in this section.

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NEW YEAR'S GREETINGS

AS we enter upon the threshold of another year and look back over the year just past, with its joys and sorrows, its successes and failures and its momentous history making events, we can but hope that the New Year with all its untried possibilities will prove to be a better one;—bringing with it decisions which will result in better relations between nations and improvement in our social order.

In sending New Year's greetings to my colleagues in our society, I feel I cannot express my thoughts better than in the words of Dickens—.

“There must have been some few occurrences in the past year to which we can look back with a smile of cheerful recollection if not with a feeling of heartfelt thankfulness. And we are bound by every rule of justice and equity to give the New Year credit for being a good one, until he proves himself unworthy the confidence we repose in him.”

“May the New Year be a happy one to you,

Happy to many more whose happiness depends on you!

So may each year be happier than the last, and not the meanest of our brethren or sisterhood debarred their rightful share, in what our Great Creator formed them to enjoy.”

J. H. L. S.

NATIONAL UNITY

It is doubtful if, during the whole seventy-one years which have passed since Canada became a Confederation, more discussion has taken place on national unity than has been the case during the past one or two years. Governments, both Federal and Provincial; organizations, national and provincial, and countless individuals have been discussing the need and desirability of national consciousness and national solidarity.

But during this same period what have many of these same people actually done about it? Suggestions and proposals calling for action are worse than useless unless followed by remedial action.

Among those bodies urging national cohesion has been the Canadian Medical Association. What have we done about it? Well, during the past

four years, we have seen seven of the nine provinces taking action whereby the recognized medical organizations within the provinces have closely identified themselves with the Canadian Medical Association by becoming Divisions. During the month of December, just passed, six Provincial Associations have, at their own expense sent to non-members of the C.M.A. in their respective provinces, 2179 medical journals, with covering letters urging the recipients to join the C.M.A. Is not this tangible evidence of words being followed by action?

By what means are the citizens of Canada going to be made more truly national in their thinking if steps are not taken by various groups such as our own profession, to develop national consciousness. It would be a very good thing if every medical man would think this over. It is not necessary for him to love the area in which he lives or his province any less, by throwing in his lot with his colleagues in Canada as a whole.

It is quite apparent that medical societies in Canada are, more and more, being seized with the desirability of promoting national unity within our profession. This is a healthy sign both for the profession and for Canada.

T. C. R.

CASE REPORTS

Subacute Bacterial Endocarditis.

This patient, a young man aged 26 years walked into the office on June 12th, complaining of weakness, shortness of breath on exertion, night sweats, loss of weight, and slight cough.

Past History: No recurrent sore throats; no history of chorea, or growing pains. No serious illnesses; may have had dry pleurisy six years ago. No family history of tuberculosis. Last winter while working in the lumber woods had influenza and has not felt real well since. He says that on several occasions during the past six weeks he has taken his temperature and that it has been as high as 103.6.

Examination: A well developed, intelligent young man, decidedly pale.

Abdomen: No masses; no enlargement of liver or spleen.

Chest: Symmetrical; expansion good; on coughing no rales.

Heart: No enlargement made out but all sounds are replaced by a soft systolic murmur.

Extremities: No clubbing of the fingers, no enlargement tenderness or redness of the joints. There was some mention of transient joint pains by the patient on close questioning. No petechiae or rose spots.

Urinalysis: Sp. Gr. 1014, acid; no sugar, no albumen; no pus blood or casts on microscopical examination.

Blood W.B.C. 12,000 Haemoglobin 70%; R.B.C. 2600000. Blood Pressure 110/64.

On account of the prevalence at one time of contagious abortion in dairy herds in the community, blood was taken for a Widal but several were negative for Br. abortus and organisms of the typhoid group. Sputum was negative for Tbc.

The patient was sent home to bed. For lack of something better to do, he was given sulfanilamide gr. x q.i.d. although it is stated (Brown, CMAJ July 1938) . . . "to date there are no recorded recoveries in cases of streptococcal endocarditis, whether due to the haemolytic type or the streptococcus viridans". Otherwise except for iron therapy treatment was purely symptomatic.

Patient ran a septic temperature 100-105 except for the 3 or 4 days previous to his death on August 1, 1938. He continued to have profuse sweats and became progressively weaker, haemoglobin and blood pressure dropping gradually. Blood pressure July 25 80/40. No enlargement of the spleen was ever made out and no petechiae were noted. On July 24 he had pain in the right lung, coughed up bright blood, pulse went up 140-160 and death appeared imminent but he hung on until August 1. The day before his death the liver border was 4 fingers breadth below the costal margin.

Blood culture taken on July 8 was sterile through 5 subcultures after 136 hours incubation. On account of the obvious outcome of the case and patient's dislike of venupuncture the family did not favor more cultures. It is possible that the case was due to H. influenzae which is said to be the organism responsible in 10% of cases of subacute bacterial endocarditis.

Abstracts from Current Journals

GENERAL MEDICINE

The *Practitioner* October '38 is devoted to Advances in Diagnosis and Treatment. Advances in Medicine, Surgery, Gynecology and Obstetrics and Diseases of Children are first in the list of twenty specialties, including Cardiovascular Disease, Anemias, Rheumatic Disease, Venereal Disease, Urology and Endocrinology.

Medicine. By Henry Moore, University Medical College, Dublin.

The Sulphanilimides. Everyone should be aware of the wide range of usefulness of these chemotherapeutic agents well enough that even review is unnecessary. One of the latest of these compounds M and B 693 apparently of distinct benefit in acute lobar pneumonia.

The sulphanilimides apparently act only as blood-borne antiseptics and their direct application is of little value; they do not act well in non-vascular foci such as clots, cardiac vegetations and necrotic areas; they seem to operate in conjunction with the natural defence forces of the body and results are poor if the latter are defective. Other sulphanilimide compounds will doubtless become available and it will be a problem of the near future to correlate their chemical structure with the nature of the micro-organisms which each is most suitable to combat. . . These compounds have the great advantages that they can be administered by mouth; their toxic effects in general can be easily recognized and are not dangerous when reasonable precautions are exercised.

Protamine Zinc Insulin. With a single moderate dose (20-30 units) there is a slow steady absorption of insulin over a period of 18-26 hours—simulating more closely than soluble insulin, the gradual mobilization of insulin from the islands of Langerhans of the non-diabetic. Protamine zinc however is cumulative in its action so that reaction must be looked for more carefully—symptoms develop more insidiously and persist longer. It is not suitable for every patient and in some cases gives better results when used in addition to soluble insulin, either given separately, or mixed with soluble insulin in the same syringe.

The Flexible Gastroscope. The use of this instrument is a striking advance in gastro-enterology. With proper technique, it is as easy to pass as the ordinary stomach tube. An excellent view is obtained of the greater part of the stomach. It is of great use in diagnosing the type of gastritis, in helping to decide whether a lesion is benign or malignant, and in studying the appearance and healing of an ulcer. It does not displace gastric radiology but is complementary to it.

Synthetic Magnesium Trisilicate. This compound has been introduced as a non-toxic neutralizer of hydrochloric acid—acting more slowly and for a more prolonged period—three hours. The trisilicate reacts chemically with hydrochloric acid to form magnesium chloride and an insoluble silica gel, the latter neutralizing by absorption. It is giving excellent results in hyperchlorhydria and peptic ulcer used alone or with the alkalis commonly given.

Vascular Hypertension. Experiments by Goldblatt and confirmed by others show compression of the main renal arteries in dogs and monkeys results in secondary vascular hypertension and by varying the narrowing of the arteries, hypertension could be produced at will, lasting even for several years in some animals. Apparently some substance is produced in the ischemic kidney that is directly or indirectly concerned in the production of hypertension. Some observers believe that this effective substance acts through the adrenal cortex. At any rate a new start has been made for the attack on the problem that would increase many lives by a decade.

Heparin and Thrombosis. Clinical studies are being made at present on the intravenous administration of heparin in relation to the prevention of post-operative thrombosis and the effect on thrombosis already existing. An interesting development of the work is seen in successful prevention of thrombosis of the coronary arteries in dogs.

Gall-bladder Disease. A plea is made by Moch et al for a trial of physiological medical management in the following types of chronic gall-bladder disease:

- 1/ Chronic cholecystitis with no biliary calculi and no pancreatitis,
- 2/ Chronic cholecystitis with large soft calculi, few in number, and no gall stone colic.

The treatment advocated is: 1. Kotocholanic acids by mouth to stimulate the flow of bile. 2. A high fat diet (hourly feedings of milk and cream) to induce contraction and emptying of the gall-bladder at frequent intervals, and 3. Antispasmodic medication (Tr. belladonna 8 minims, Elixir phenobarbital $\frac{1}{2}$ gr. t.i.d.) to diminish gastro-intestinal irritability. The authors state that in a large percentage of suitable cases relief was obtained.

Surgery. By Lambert Rogers, Professor of Surgery, University of Wales.

Much surgery is in the nature of an apology for ineffective medicine-diagnosis and internal treatment. As medicine has advanced so is there less need for gross surgery. The great mutilating resections for malignant disease have gone; the sweeping rapid type of operating has disappeared. Precise bloodless, gentle operating has followed and operative procedures have been used more to influence function-vasodilatation induced by sympathectomy. With the use of plaster of Paris, there has been a disappearance of many complicated splints.

The improvements in anesthesia, in radiodiagnosis and radiotherapy and the great advances in biochemistry and biophysics have assisted greatly not only in pre-operative investigation but also in the surgical management of patients.

He concludes that with the rapid progress of medicine, radiotherapy, and hygiene, surgery may be on the wane but still far from the time when it will only be required for the treatment of accidents. Erichsen in 1873 said "We have already carried the art of surgery to the highest degree of perfection" and in 1928 Moynihan wrote "It is not possible to imagine any considerable improvement upon the methods and results of to-day". It would perhaps therefore be wise to conclude that great developments in the science and art of surgery may yet take place.

The Profession and the Public. By C. D. Lindsay. Presidential Address to the B.M.A. Plymouth, July 19/38.

The medical profession is looked on as a great industry. An industry whose product is the health, both mental and physical, of the community which it serves; although the word industry has come to have a meaning that throws the emphasis on the indirect product—money—rather than on the direct product of the labor involved. This emphasis is and always will be foreign to our own work. This industry is one which is provided with a plant that is excellent, efficient and up-to-date despite the fact that it has grown up haphazardly and piecemeal and there is great want of correlation and great duplication of effort.

First the selling end of the industry as represented by the general practitioner. If you want some unusual article, you go to a retail shop and make use of their experience with the wholesalers; you are likely to get what you want from the most appropriate source. Some such arrangement is necessary in medicine. The matter of health and its maintenance is so essentially a personal thing that the personnel of this (retail) division of our health industry must have a close relationship with the public as individuals. This relationship is only possible in the family doctor either in the present form or some essentially similar form.

The more the public is educated and the more health services extend and intrude into the lives of people, the more will there be required an active and intelligent family doctor service. It will require a wide professional training to insure the early recognition of disease and the proper recognition of the need for a specialist service. A good general education will be essential; also personality and mental agility, so as to effectually inspire confidence and assist in the education of a public which daily is becoming more enlightened. To quote one example of the need of good training; the amount of minor and major functional nervous disease in the community is large; the earlier it is recognized, the more hopeful the outlook. It is only the general practitioner who can lead the attack. His position as trusted counsellor and family friend lends itself admirably to the purpose. It is true that all general practitioners are more or less psychotherapists—much more effective if their training included good instruction in medical psychology.

This family doctor is the obvious connecting link for our medical industry. All direct contact with the public as individuals should be made in the first instance through the family doctor. There should be no short-circuiting or duplication of his services.

At the back of the family doctor service, there must be a specialist service. It is quite impossible for one person to be proficient in every branch. That great surgeon Lord Moynihan is reported to have said that he liked to consider himself a physician, who had sometimes to employ surgery to cure some of his cases. The family doctor when all is said and done is a specialist in the recognition of disease in its early stages. There is no real reason why one branch should be more eminent than the other—they are complementary. Each requires attainments of the highest order.

Financial Considerations. The real reward to the good doctor must always be the knowledge of having served the cause of humanity. The vast majority of the profession must however, depend on their work for the living expenses and upbringing their families.

The B.M.A. has proposed a general medical service for the nation in which two vital principles of free choice of doctor and of payment on an insurance basis, are advocated. The first great extension is the inclusion in the system of all members of all families with an income of £250/yr. The second extension is that the service should include all forms of specialist consultant service as well as that provided by the general practitioner. These proposals would bring three-quarters of the community within any official system of medical service.

The remuneration of consultants is subject to different conditions. Their fees are high relative to other branches. The reason for this is that the consultant has a relatively short earning period. He has to serve a long and practically unpaid apprenticeship. If the young consultant were paid a reasonable salary from the funds of the hospital, he would be assured of a livelihood and could accept lower fees for outside consultative work.

Publicity. Every industry, apart from its productive side, always has in addition a publicity side. It has always been a keystone of medical policy that publicity or advertising is in direct antithesis to the best interests of the profession and public alike. However, some form of group advertising by the profession is due—overdue.

Taken as individuals and in times of sickness, the public puts almost a blind trust in medicine and the particular practitioner treating them. But the public taken as a mass and in health does not trust medicine or the profession.

The theme of public education in health now, is apt. Teaching in elementary biology, anatomy and physiology should be an essential part of all education. We, as medical men, should see that it is included in the curriculum of the schools. Courses of lectures should be arranged by branches of the B.M.A. The press and radio broadcasting are other means of education. The medical profession should see that a supply of well-informed and informing articles are available to the press and radio. The credulity of the public toward patent medicines should be offset by education directed against it—school and office.

The more the public trusts us, the more are we able to help and the sooner they will realize that we are trying to protect them against themselves.

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Eaton, F. F., Truro.
 Havey, H. B., Stewiacke.
 Johnston, T. R., Great Village (Mepy).

CAPE BRETON COUNTY

Tompkins, M. G., Dominion.
 Fraser, R. H., New Waterford.
 Francis, Bernard, Sydney Mines.
 Sutherland, Harvey, Glace Bay.
 McLeod, J. K., Sydney.
 O'Neil, F., Sydney (County, South Side).

CUMBERLAND COUNTY

Bliss, G. C. W., Amherst.
 Gilroy, J. R., Oxford.
 Hill, F. L., Parrsboro, (Mepy. and Town).
 Cochrane, D. M., River Hebert (Joggins).
 Walsh, F. E., Springhill.

DIGBY COUNTY

Doiron, I. F., Little Brook, (Clare Mepy).
McCleave, J. R., Digby.
Harris, W. C., Barton, (Mepy).

GUYSBORO COUNTY

Chisholm, D. N., Port Hawkesbury
(M.H.O. for Mulgrave).
Sodero, T. C. C., Guysboro (Mepy).
Moore, E. F., Canso.
Silver, G. L., Sherbrooke (St. Mary's
Mepy).

HALIFAX COUNTY

Morton, A. R., Halifax.
Forrest, W. D., Halifax (Mepy).
Payzant, W. A., Dartmouth.

HANTS COUNTY

Bissett, E. E., Windsor.
MacLellan, R. A., Rawdon Gold Mines
(East Hants Mepy).
Reid, A. R., Windsor, (West Hants Mepy).
Shankel, F. R., Windsor, (Hantsport).

INVERNESS COUNTY

Muir, J. A., Port Hawkesbury.
Grant, T. E., Port Hood.
Proudfoot, J. A., Inverness.
McNeil, A. J., Mabou, (Mepy).

KINGS COUNTY

Bishop, B. S., Kentville.
Bethune, R. O., Berwick, (Mepy & Town).
de Witt, C. E. A., Wolfville.

LUNENBURG COUNTY

Marcus, S., Bridgewater (Mepy).
Reh fuss, W. N., Bridgewater.
Donaldson, G. D., Mahone Bay.
Zinek, R. C., Lunenburg.
Zwieker, D. W. N., Chester, (Chester
Mepy).

PICTOU COUNTY

Blackett, A. E., New Glasgow.
Chisholm, H. D., Springville, (Mepy).
MacMillan, J. L., Westville.
Crummey, C. B., Trenton.
Sutherland, R. H., Pictou.
Whitman, G. W., Stellarton.

QUEENS COUNTY

Murray, D. K., Liverpool.
Smith, Harry, Caledonia, (Mepy).

RICHMOND COUNTY

Digout, J. H., St. Peters, (Mepy).

SHELburne COUNTY

Corbett, J. R., Clark's Harbour.
Fuller, L. O., Shelburne.
Banks, H. H., Barrington Passage, (Bar-
rington Mepy).
Lockwood, T. C., Lockeport.
Churchill, L. P., Shelburne, (Mepy).

VICTORIA COUNTY

MacMillan, C. L., Baddeck, (Mepy).

YARMOUTH COUNTY

Hawkins, Z., South Ohio, (Yarmouth
Mepy).
Caldwell, R. M., Yarmouth.
Lebbetter, T. A., Yarmouth, (Wedgeport).
Siddall, A. M., Pubnico Head, (Argyle
Mepy).

Those physicians wishing to make use of the free diagnostic services offered by the Public Health Laboratory, will please address material to Dr. D. J. MacKenzie, Public Health Laboratory, Pathological Institute, Morris Street, Halifax. This free service has reference to the examination of such specimens as will assist in the diagnosis and control of communicable diseases: including Kahn test, Widal test, blood culture, cerebro spinal fluid, gonococci and sputa smears, bacteriological examination of pleural fluid, urine and faeces for tubercle or typhoid, water and milk analysis.

In connection with Cancer Control, tumor tissues are examined free. These should be addressed to Dr. R. P. Smith, Pathological Institute, Morris Street, Halifax.

All orders for Vaccines and sera are to be sent to the Department of the Public Health Metropole Building, Halifax.

Report on Tissues sectioned and examined at the Provincial Pathological Laboratory, from December 1st., 1938, to January 1st., 1939.

During the month, 209 tissues were sectioned and examined, which with 7 tissues from 3 autopsies, makes a total of 216 tissues for the month.

Tumours, simple.....	25
Tumours, malignant.....	39
Tumours, suspicious of malignancy.....	2
Other conditions.....	143
Tissues from 3 autopsies.....	7

Communicable Diseases Reported by the Medical Health Officers
for the month of December, 1938.

County	Cerebro Spinal	Chickenpox	Diphtheria	Influenza	Measles	Mumps	Pneumonia	Scarlet Fever	Typhoid Fever	Tbc. Pulmonary	V. D. G.	V. D. S.	Whooping Cough	Diarrhoea	Paratyphoid	Goitre	Erysipelas	TOTAL
	Meningitis																	
Annapolis	1	2					1			1	2		1					8
Antigonish																		
Cape Breton	28	8			10	21	1	23			7	6	17	4				125
Colchester																		
Cumberland							2											2
Digby	2																	2
Guysboro	4											1			1			6
Halifax City	3	4			8			11									1	27
Halifax																		
Hants																		
Inverness				1		5	2	2									1	11
Kings				14														14
Lunenburg								5										5
Pictou																		
Queens																		
Richmond																		
Shelburne																		
Victoria																		
Yarmouth			3						7									10
TOTAL	38	17	15	18	26	6	41	7	1	9	7	18	4	1	1	1	1	210

Positive cases Tbc. reported by D.M.H.O.'s. 85.

RETURNS VITAL STATISTICS FOR NOVEMBER, 1938

County	Births		Marriages	Deaths		Stillbirths
	M	F		M	F	
Annapolis	5	12	13	6	3	1
Antigonish	6	10	10	5	8	0
Cape Breton	121	116	74	47	38	7
Colchester	24	22	23	9	12	1
Cumberland	30	34	28	17	19	1
Digby	16	17	9	10	8	3
Guysboro	6	13	8	4	4	0
Halifax	96	88	95	60	43	8
Hants	15	10	18	8	6	0
Inverness	7	12	12	8	11	0
Kings	13	29	31	8	5	0
Lunenburg	25	18	31	15	13	2
Pictou	33	30	27	16	20	2
Queens	5	11	4	2	2	0
Richmond	8	7	7	5	5	0
Shelburne	11	21	8	8	4	1
Victoria	3	4	16	2	1	0
Yarmouth	19	27	3	11	11	3
	443	481	417	241	213	29

SOCIETY MEETINGS

Lunenburg-Queens Medical Society

The Lunenburg-Queens Medical Society held a banquet and business meeting at the Fairview Hotel, Bridgewater, December 6th. At the close of the banquet a short business meeting was held and the following officers elected: President—Dr. C. A. Donkin, Bridgewater. Vice-President, Dr. W. A. Hewat, Lunenburg. Secretary-Treasurer, Dr. C. G. MacKinnon, Bridgewater. Executive—The foregoing members and Dr. H. A. Fraser, Bridgewater; Dr. J. C. Wickwire, Liverpool. Representatives to the Medical Society of Nova Scotia—Dr. G. A. Barss, Rose Bay; Dr. C. B. Cameron, Petite Riviere. Papers were ready by Dr. C. E. Kinley of Halifax on "Tumors of the Breast" and Dr. C. W. Holland, also of Halifax, on "Use of Protamine-Zinc-Insulin."

OBITUARY

Dr. John Stephen Thompson of Cambridge, Mass., who has been in the Province since last June visiting relations at Cloverville, Antigonish, passed away at St. Martha's Hospital on January 8th. The late Dr. Thompson was born at Cloverville on Christmas Day, 1863. He attended St. Francis Xavier University for his early education and afterwards graduated in medicine from Georgetown University, Washington. With the exception of a few years which he spent as ship's physician in the fisheries service of the United States Government, Dr. Thompson practised at Cambridge, Mass.

The BULLETIN extends its sympathy to Dr. H. A. Creighton of Lunenburg on the death of his father, Graham Creighton, who died at his home, 14 Le Marchant Street, Halifax, on January 2nd.

The Medical Museum

The Medical Museum Committee acknowledges with thanks the following articles which have been received from Dr. C. A. Webster of Yarmouth. Four spring artery clips. About 1870. Property of Dr. John Webster. Linton Sponges.

Obstetrical Instruments. Craniotomy set—1 Vectis, 1 Craniotome, 2 Hooks. Property of Dr. Isaac Webster, Horton's Corner. Stomach Pump. Property of Dr. Thomas C. Geddes.

Old instruments, medical books of historical interest or manuscripts will be gladly received for the Museum by Dr. Ralph P. Smith, Pathological Institute, Halifax, N. S.

Adrenal-Gland Products

Adrenal Cortical Extract contains the active principle of the adrenal cortex and has proved useful in the treatment of certain cases of Addison's disease. In the course of extensive research in the Connaught Laboratories on the preparation of Adrenal Cortical Extract, a highly effective product was evolved for clinical use.

Adrenal Cortical Extract

Adrenal Cortical Extract is supplied as a sterile solution in 25 cc. vials. It is non-toxic, is free from pressor or depressor substances and is biologically standardized.

During the preparation of Adrenal Cortical Extract, Epinephrine is obtained as a separate product. This is the active principle of the adrenal medulla and has long been used for many purposes including stimulation of heart action, raising the blood-pressure and relieving attacks of bronchial asthma.

Two preparations of Epinephrine are available from the Connaught Laboratories:

Epinephrine Hydrochloride Solution (1:1000)

Every physician is familiar with the use of epinephrine hydrochloride (1:1000). It is supplied by the Connaught Laboratories in 30 cc. rubber-capped vials instead of in corked or stoppered bottles. Thus, individual doses may be readily withdrawn from the vials aseptically without occasioning any deleterious effects upon the solution left in the vials for later use.

Epinephrine Hydrochloride Inhalant (1:100)

Recently considerable success has been secured in the alleviation of attacks of bronchial asthma by spraying into the mouth this more concentrated solution of epinephrine hydrochloride. This solution is supplied in bottles containing 1/5 fl. oz. (approx. 6 cc.), each bottle being provided with a dropper fastened into its stopper so that small amounts of the solution may be transferred for inhalation from an all-glass nebulizer.

Prices and information relating to the use of these adrenal-gland products will be supplied gladly upon request.

CONNAUGHT LABORATORIES
UNIVERSITY OF TORONTO

TORONTO 5, CANADA

Personal Interest Notes

Dr. C. B. Crummev has removed his office from Trenton to New Glasgow.

Dr. H. W. Kirkpatrick of Halifax was elected a member of the Canadian Ophthalmology Society at its regular meeting held in Montreal in August last.

General Medical Clinic established at Armdale. The first of the general consulting clinics was held at Armdale, a suburb of Halifax, on January 11th, under the sponsorship of the Armdale Chapter, I.O.D.E., and with full permission and approval of the health authorities of Halifax City and County. Two doctors were in attendance, and two qualified nurses were there to help them. The clinic has been established to offer medical help to those unable to pay, and also to immunize the children of that district against diphtheria and smallpox.

Congratulations to Dr. and Mrs. J. S. Robertson of Yarmouth on the birth of a son at Halifax on January 4th.

Dr. and Mrs. R. M. Benvie of Stellarton are spending several weeks in Halifax.

Dr. and Mrs. E. A. Fergusson of Weymouth have returned from a trip to New York.

Dr. Helen C. Spurr, Dalhousie '38, of the medical staff of Sydenhams Children's Hospital, London, spent her Christmas vacation with friends at Chichester.

Supervisor for Outpost Hospital is Appointed.

Miss Ann Slattery, public health nurse for Hants and Kings Counties for the past six years, has been appointed supervisor of the Red Cross Outpost Hospital to be built near Dingwall, Victoria County. The new hospital is the first institution of its kind to be established in Nova Scotia. Its purpose is to serve the needs of the people in this isolated part of the province where there is no immediate access to medical assistance. Miss Slattery has been in public health work for some time. She is a graduate of McGill University, and goes to her new post well qualified, theoretically and practically. Dr. J. S. Munro of North Sydney has agreed to answer calls as far as possible from this district until a resident physician is appointed. The people of Victoria County have already raised more than \$1,000.00 towards the expense of a resident physician, and it is expected that before long the district will have a resident doctor.

Dr. Simpson Honoured.

At a gathering in Springhill on January 6th our President, Dr. Simpson, was presented with a beautiful mantel clock in appreciation of the splendid work he is doing in that district.

Special Announcement

Ayerst

ANTIPNEUMOCOCCUS SERUM (RABBIT)

is now available in two types
(TYPE 1 and TYPE 2)

Through the co-operation and assistance of Professor E. G. D. Murray, Department of Bacteriology and Immunity, McGill University, our laboratory has now made available antipneumococcus rabbit serum for the treatment of Type 1 and Type 2 lobar pneumonia.

Prepared and standardized according to the methods developed at the Rockefeller Institute for Medical Research.

Each batch of Ayerst Antipneumococcus Rabbit Serum is subjected to clinical test before being released for sale.



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is standardized to contain
20,000 International Units
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Prices, typing instructions and information as to dosage will be supplied gladly to any physician or hospital upon request.

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CANADA

Group Hospitalization at Antigonish.

St. Ninian's parish and St. Martha's Hospital, Antigonish, have concluded a group hospitalization scheme. Eighty persons have as the nucleus signed up. The scheme, which went into effect January first, calls for a family rate of three dollars per quarter. This entitles members to five weeks of ward treatment free at a time to each dependent member of the family; to a 50% reduction in the rate for private and semi-private rooms; to free laboratory services and ordinary medicines; to a 50% cut on X-ray and operation room fees.

Individual members may enroll on the same terms (for themselves only) for two dollars a quarter. Rev. J. R. MacDonald took the leading part in the promotion of the scheme. The unit will be known as the Mutual Hospitalization Group. It is the third group to make such an arrangement with the hospital.

Dr. W. M. Roy, Dalhousie '38, member of the staff of the Crile Clinic, Cleveland, Ohio, spent the Christmas holidays with his parents, Dr. and Mrs. A. K. Roy, North Sydney.

Dr. and Mrs. G. W. T. Farish of Yarmouth are visiting in Montreal.

Dr. A. B. Campbell of Bear River recently spent a very enjoyable vacation in Halifax, Boston, New York and Troy, returning home via Saint John.

Dr. and Mrs. W. A. Hewat and family of Lunenburg spent the Christmas week end with Mrs. Hewat's parents at Yarmouth.

Dr. and Mrs. W. W. Bennett of New Germany left early in January for the Old Country where Dr. Bennett will take post-graduate study in London and Scotland for a year. Dr. S. R. Bennett of New Ross will substitute for Dr. W. W. Bennett in his absence.

Dr. L. R. Meech of North Sydney addressed the Rotary Club at a meeting held on December 29th.

Dr. and Mrs. W. G. Colwell of Halifax have returned from Ottawa where they visited Mrs. Colwell's parents during the Christmas season.

Dr. M. A. Macaulay of Halifax has returned from a trip to Ottawa.

Dr. and Mrs. Joseph Hayes of Halifax celebrated their golden wedding anniversary on December 11th.

Dr. H. R. MacKean who arrived from Millertown, Newfoundland, in October to take over the practice vacated by Dr. W. E. Pollett of New Germany, left early in December for Glace Bay, where he will practise in future.

ANNOUNCEMENT . . .
. . . To the Medical Profession

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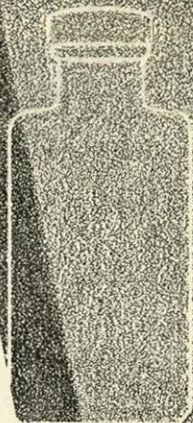
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IS NOW AVAILABLE IN CANADA

Numerous clinical reports have appeared in leading medical journals (under the experimental number M. & B. 693) concerning the use of this drug in the treatment of pneumonia.

Supplies, which were at first limited to controlled clinical trials, are now generally available to physicians and hospitals under the brand "DAGENAN".

Send coupon for complete information about DAGENAN (M. & B. 693) in the treatment of pneumonia.



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Tablets each containing 0.5 gramme of the active substance in bottles of 20, 100 and 1000 tablets.

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Please send me at once information about DAGENAN (M. & B. 693) in the treatment of pneumonia.

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(Signature of Doctor)
.....
.....

What's in a Name

Dr. John Blank used to get a real thrill out of winter, but he doesn't any more. It is this way: He used to look forward with keen pleasure to the curling season. In his hours of relaxation, he was to be found enjoying good health and good fellowship as he took part in the ancient Scottish game, but he doesn't play any more. What happened? We quote his own words:

"You ask me why I quit curling. Well, it is a sad story and you may say a silly one. Perhaps I am a supersensitive individual but I just could not stand the fellows around the rink calling me "Doc". They were good friends of mine, too. I am sure there was not a man in the Club who would intentionally hurt my feelings, and yet, every time one of them called me "Doc", it was just as if some one were stabbing me in the back with a stiletto. Like many another Doctor, I had not the courage to frankly disclose my feelings in the matter so I just quit curling but I am sure that if the fellows to whom I refer and also the general public knew how distasteful to the average medical man the title "Doc" is, this vulgar form of greeting would rapidly wane and disappear."

And thus this article is written. Doctor, do not hesitate to let your wide circle of acquaintances and friends know that, if they feel they are sufficiently intimate with you to call you other than Doctor, they may call you your first name or your last name, but, on no conditions of friendship or intimacy, must they call you "Doc". It is unlikely that the average man has ever stopped to think how unpleasant this term sounds to the medical practitioner, and perhaps all that is needed is to focus attention on the fact that you do not like it.

Our profession are neither high brows nor snobs. We are common people, mingling with the common people, and glad of the opportunity of doing so; but please do not call us "Doc". Doctor sounds so much nicer and preserves a relationship which is much to be desired.

PHYSICIAN WANTED

The Secretary has received a letter from Mr. Fred W. Douglas of Salisbury, N. B., asking help in securing a physician to locate there. Mr. Douglas will be pleased to supply further information to anyone interested.

LOCUMS WANTED

Preferably a young man, single, sober habits, Gentile, salary \$200.00 a month, with room and board and travelling expenses. Apply to the Secretary.

STRAPPED FOR RICKETS

The swaddled infant pictured at right is one of the famous works in terra cotta exquisitely modeled by the fifteenth century Italian sculptor, Andrea della Robbia. In that day infants were bandaged from birth to preserve the symmetry of their bodies, but still the gibbous spine and distorted limbs of severe rickets often made their appearance.

SWADDLING was practised down through the centuries, from Biblical times to Glisson's day, in the vain hope that it would prevent the deformities of rickets. Even in sunny Italy swaddling was a prevailing custom, recommended by that early pediatrician, Soranus of Ephesus, who discoursed on "Why the Majority of Roman Children are Distorted."

"This is observed to happen more in the neighborhood of Rome than in other places," he wrote. "If no one oversees the infant's movements, his limbs do in the generality of cases become twisted. . . . Hence, when he first begins to sit he must be propped by swathings of bandages. . . ." Hundreds of years later swaddling was still prevalent in Italy, as attested by the sculptures of the della Robbias and their contemporaries. For infants who were strong Glisson suggested placing "Leaden Shoes" on their feet and suspending them with swaddling bands in mid-air.

How amazed the ancients would have been to know that bones can be helped to grow straight simply by internal administration of a few drops of Oleum Percomorphum. What to them would have been a miracle has become a commonplace of science. Because it can

Oleum Percomorphum offers not less than 60,000 vitamin A units and 8,500 vitamin D (International) units per gram. Supplied in 10 and 50 c.c. bottles, also in boxes of 25 and 100 ten-drop soluble gelatin capsules containing not less than 13,300 vitamin A units and 1,850 vitamin D units (equal to more than 5 teaspoonfuls of cod liver oil*).



A bambino from the Foundling Hospital, Florence, Italy,—A. della Robbia

be administered in drop dosage, Oleum Percomorphum is especially suitable for young and premature infants, who are most susceptible to rickets. Its vitamins A and D derived from natural sources, this product has 100 times the potency of cod liver oil.* Important also to your patients, Oleum Percomorphum is an economical antiricketic.

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TRASENTIN "CIBA"

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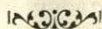
Trasentin exhibits an antispasmodic action similar to that of atropine, but without the unpleasant side-effects of the latter drug on the heart (acceleration of the pulse, palpitation, etc.), on the pupil (mydriasis), on the accommodation (visual disturbances) and on the salivary glands (dryness in the throat, thirst and even dysphagia). It is not a simple substitute for atropine, but possesses the advantage of acting in a marked degree also on smooth muscle tissue, like papaverine. Clinical investigations have shown that Trasentin is well tolerated.

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TRACT, GENITO-URINARY SYSTEM AND OTHER
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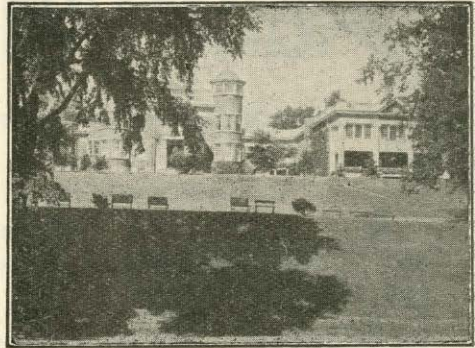
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"That isn't Dr. Brown, you idiot. That's Dr. Smith, the lunacy expert."

"Doctor "

The modern woman approached the medical man tremblingly.

"Is there no hope of my husband—"

"Go on, madame;—"

"Is there no hope, doctor; is there no hope?"

"That depends, madame, on what you are hoping for," said the doctor reaching for his hat.

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