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Original Communications.

THE TREATMENT OF TUBERCULOSIS IN SANATORIA.*

P. H. BRYCE, M.D.,
Secretary Provincial Board of Health.

Mr. Chairman, and Gentlemen of the London Medical Society:

It was with unusual pleasure that I received your kind invitation to read a paper before the Society on a subject which is assuming so important a position in our ideas relative to the treatment of that most prevalent and fatal disease, tuberculosis. It is quite true that tuberculosis presents very different clinical appearances at the several periods of life; yet, as will appear in the mortality returns which are presented in the following table of deaths in Middlesex during the past five years, we may for practical purposes say that treatment in sanatoria of tuberculosis will be of that pulmonary form commonly known as consumption. Thus only fifty-eight deaths, including those under one year, are recorded for the first ten years of age out of the 673 deaths which were registered; or we may say that over one hundred deaths occur annually in Middlesex from pulmonary tuberculosis.

*Read at Convention in London.

DEATHS FROM CONSUMPTION, COUNTY OF MIDDLESEX, BY AGES AND SEX.

(For five years, 1895 to 1899, inclusive.)

Years		Under 10	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 and over	Age not given	Totals
1895	Males	1	6	25	13	9	9	5	3	..	71
	Females	2	12	20	11	8	10	3	..	..	66
	Totals	3	18	45	24	17	19	8	3	..	137
1896	Males	4	5	13	9	4	4	6	..	1	46
	Females	4	11	25	17	11	8	2	1	..	79
	Totals	8	16	38	26	15	12	8	1	1	125
1897	Males	5	7	9	10	10	5	6	1	..	53
	Females	7	10	23	14	12	5	3	1	..	75
	Totals	12	17	32	24	22	10	9	2	..	128
1898	Males	6	5	12	10	9	10	5	2	..	59
	Females	13	12	24	7	8	5	5	2	..	76
	Totals	19	17	36	17	17	15	10	4	..	135
1899	Males	11	6	15	18	8	7	8	5	..	78
	Females	5	7	20	16	6	8	2	6	..	70
	Totals	16	13	35	34	14	15	10	11	..	148
Grand Total	Males	27	29	74	60	40	35	30	11	1	307
	Females	31	52	112	65	45	36	15	10	..	366
	Grand Total.	58	81	186	125	85	71	45	21	1	673

But while this is true as regards actual deaths, it is not equally true as regards the proportion of different forms of the disease actually prevalent during the various periods of life. As expressed in a previous paper:

"The interest which the study of this disease has for us as medical men becomes increasingly great when we recognize how numerous are its varied manifestations, how insidious its beginnings, and yet, though so often slow its evolution, so fatally persistent in its progress. From birth to old age this disease is present, often obscuring as mists of the morning our vision in the diagnosis of the diseases of infancy, again seeming for the few short years of childhood to be dissipated as the

clouds at noonday, only to return once more with adolescence as a dark storm-cloud, too often bringing rapid ruin and destruction with it; or if such be delayed, then only to leave constitutions as shattered ships, gradually but surely breaking up until they finally disappear in the deeper gloom. So generally spread, indeed, are the germs of this disease that the physician must ever be prepared to see them taking advantage of the invasion of every acute disease, as when in typhoid, pneumonia or pleurisy they make the attack at some vulnerable point when the vital resistance of the patient is at its lowest point."

Realizing the truth contained in this paragraph, it is apparent that there must always be a large number of cases of incipient tuberculosis, which will not be recognized as such until some more acute manifestation of the disease places the patient in the hands of some physician. That even then many cases are not diagnosed is quite within the experience of all. It must, therefore, appear evident that the problem of the treatment of tuberculosis, from the standpoint of a cure, whether in a sanatorium or elsewhere, depends primarily, other things being equal, upon the stage at which the patient comes under medical observation. I have collected data from various sources of information which will be useful in our consideration of this very essential point.

Stage of the Disease at Time of Diagnosis and Treatment.

In the laboratory of the Provincial Board of Health, specimens of sputum are examined from all parts of the Province, with information supplied on postcards. Of 138 specimens, Dr. J. J. Mackenzie gave the following results:

Durating Symptoms (Reported).		Positive.	Negative.
One month and under	18	16.6 per cent.	83.4 per cent.
One to two months	26	34 6 "	43.4 "
Two to three months	14	50 "	50 "
Three to six months	27	55.5 "	43.5 "
Six to twelve months	28	46.4 "	53.6 "
One to two years	8	62.5 "	47.5 "
Over two years	15	26.6 "	73.4 "

The results of the second laboratory period, ending October 31st, 1900, are included in the following:

Of the 591 specimens sent to the Provincial Health Laboratory in 10 months ending October 31st, 1900, 218 gave positive results, and 373 gave negative. Of 389, with data supplied, 149 gave positive results, and 240 negative results. Of 149 positive results, 69 were males and 80 were females.

Number of patients giving positive results, by ages:

	16-20	21-30	31-40	41-50	51-60	61-70	Total
Male.....	11	24	15	13	6	0	69
Female.....	12	32	20	9	6	1	80
Totals	23	56	35	22	12	1	149

Table showing number of positive cases, arranged according to duration of symptoms when specimens were submitted:

	1 month and under	1-2 mo's	2-3 mo's	3-6 mo's	6-12 mo's	1-2 yrs.	2 years and more	No data	Total
Male....	5	4	10	11	16	8	8	7	69
Female..	2	3	11	19	25	7	10	3	80
Total ..	7	7	21	30	41	15	18	10	149

Roughly, the disease had existed in these up to two years; on an average, for fifteen months. It may be said that until very recently the larger proportion of cases of consumption were not diagnosed until the physical signs were well advanced. Dr. S. G. Bonney, Professor of Medicine in the University of Denver, has recently written regarding 546 selected cases in private practice, and states that "388 or 71 per cent. arrive in Colorado with distinct evidence of tubercular infection in each lung," also that "the total average period of delay from the time of definite onset of the disease was a little over eighteen months." Dr. S. Edwin Solly, of Colorado Springs, says that of one hundred successive cases

In 48 cases treated as soon as diagnosed	24	were in	1st stage
	14	"	2nd "
	14	"	3rd "
In 52 cases not treated for several months or even years after onset	14	"	1st "
	17	"	2nd "
	21	"	3rd "

Statistics still more valuable for practical purposes and more comparable to the results of the laboratory returns already referred to, are those of the Hanseatic Insurance Co., carried on under the Workmen's Compulsory Insurance Laws in Germany, where, of 1,541 cases treated between 1893 and 1897, 30.9 per cent. were slightly affected; while of the Bremen Insurance Co. in 1896, 279 patients were treated at the Reichburg Sanatorium, of whom 23.9 per cent. were slightly affected, 32.7 per cent. were moderately affected, and 43.6 were seriously affected. The Gravenhurst (Ont.) authorities have stated that not more than 1 in 8 cases, examined for admission, are in the first stage of the disease. But, further, Dr. Trudeau, of the Saranac Lake Sanatorium, in his last article published this year, states that about 33 per cent. of the 1,200 cases treated within the last three years were in the incipient stage. Thus, taking the more

exact German statistics and those of Drs. Solly and Trudeau, where patients were treated as soon as diagnosed, we may say that, with our present knowledge and the actual practice of the public in the matter of seeking medical advice, not more than 25 per cent. of patients are brought under treatment for pulmonary consumption until the disease is well advanced.

It is quite clear, therefore, that, in considering the sanatorium treatment of consumption, we must keep two distinct objects in view, viz.: (*a*) the cure of the disease, and (*b*) the prolongation of the life of the patient, and the removal of infectious cases from surroundings where they are a menace to the health of others.

If we assume that each of the 100 deaths occurring in Middlesex in any year represents the 75 per cent. of patients who were in the more advanced stages of the disease, and that, as we learn from the statistics of sanatoria, a large proportion of patients at this stage do not die during the year while at the sanatorium, as at Saranac Lake, it is probably within the mark to say that at least 200 patients are present in the county in an advanced stage of the disease during any year; and, hence, at the present time any sanatorium treatment will be directed chiefly to patients in advanced stages of the disease. This will be yet more apparent when we remember the distribution of cases in different sections of the community. Thus, in the returns for the city of Toronto during five years, I have found that at least 80 per cent. of the deaths occurred in the artisan and laboring class, and that of 1,555 deaths over 15 years of age, 1,211 died during the years when, if married, they would be rearing families; while 75 per cent. of the deaths of females were within the child-bearing period.

I have dwelt on these figures at some length, since they have a most important bearing upon the subject under consideration. It is, I think, quite evident that sanatoria must be considered as falling under two classes, viz., private sanatoria for the well-to-do, and sanatoria established under the provision of some statute similar to that passed by the Legislature for establishing municipal sanatoria in Ontario. While the principles of treatment of the phthisical in each case must be the same, there will, nevertheless, be differences in detail worthy of consideration. I shall, therefore, devote my remarks especially to the municipal sanatoria which we are seeking to establish, with the view both of curing the sick and prolonging their capacity for work, and of protecting their families against infection.

Management of Patients in Sanatoria.

Anyone who has any knowledge of patients in public institutions knows that the success of the institution depends

primarily on the person in charge of the everyday work, *i.e.*, on the superintendent; and, second, upon the rules which he is called upon to carry out. In the management of a sanatorium I shall take it for granted, as being beyond question, that the superintendent should be a physician. It might be said: Well, if a sanatorium is nothing more than a large boarding-house, where the patients are to live in a clean, well-kept home, and given good food, and such exercise as they feel inclined to take, of what use is a physician? This idea has prevailed, and in some countries still prevails with regard to insane asylums and other similar institutions; but in all progressive institutions we now find the insane are being looked upon as patients, to be studied and treated with a view to cure in the same manner as any other patients. Such is the idea which has led to the success of the modern sanatorium treatment in the case of the consumptive. Hitherto he had been looked upon as incurable, and the most to be done was to make his life as comfortable as possible. Now, while we cannot hope to cure all the insane, and certainly do not expect to see all consumptives recover, yet the very success of our efforts in this as in all other work will depend upon the conviction which the superintendent has of the curability of the disease.

In the establishment of a municipal sanatorium, two things must be kept in view—that patients in the primary stage of the disease must be expected and provided for, and that patients who are in the advanced stage of the disease must be admitted in yet larger number, for a time certainly in the proportion of one to two. It may be mentioned in passing that two of the best known sanatoria on this continent, Saranac Lake and Gravenhurst, insist that only patients in the primary stage be admitted, or only such others with a history which presents the hope of cure or at least of great amelioration. Hence, at neither is there provided practically any separate hospital provision, since patients are strongly advised, if doing badly or incurable, to go home. In a municipal sanatorium, on the other hand, our object is not only to cure patients but to protect households; hence for this class of patients a very definite amount of hospital provision must be supplied from the first. The erection of a cottage hospital, therefore, becomes necessary, not only for this reason, but also in the interest of patients who are not advanced in the disease, in which the neurotic element forms so important a factor. Hopefulness and despondency must constantly be dealt with as symptoms where it will try all the resources of the expert physician to maintain hope dominant rather than despair. Thus the evil effects of lack of supervision are well illustrated at the boarding-houses and winter resort hotels in the South.

1. Hence, the first rule which must be strictly enforced in a sanatorium is, that patients be not allowed to discuss their own or other cases with persons other than the superintendent or other proper officials. This is the starting point of that benevolent medical tyranny which patients must submit to in a sanatorium.

2. The second rule is but a corollary of the first, viz.: That systematic means must be employed to in every way provide mental employment of a wholesome character, and hence we come to a third rule.

3. The careful division of each patient's time by a time-card which he or she keeps regularly as a diary, and which the physician weekly or oftener examines at the time of his medical examination, and continues or modifies the daily routine laid down previously in accordance with the experience obtained from results. I have had some knowledge of private sanatoria in different parts of this continent, and am convinced that in no one feature is there such room for improvement in the routine methods as in the close oversight of the daily life of each patient.

4. Assuming that the patient has arrived at the sanatorium, it is apparent that a complete family and personal history should be taken, as well as a detailed history of the case as regards its duration, signs, symptoms, extent of infection, progress of the disease, and a detailed examination of all organs and secretions. As the patient is new to his surroundings, it is natural that a close daily observation of him for a short time should be necessary in order that the best line of treatment in his particular case may be accurately mapped out, being modified only as subsequent observations may dictate.

5. As many are aware, the sanatorium treatment of consumption dates back to at least sixty years, but the work of Dr. Hermann Brehmer, at Gorbersdorf, begun in 1859, is the first whose history has been continuous to the present time. Following him as a pupil and co-operator, Dr. Dettweiler, of the Falkenstein Sanatorium, has added much to the knowledge already obtained at Gorbersdorf, of the treatment which we now call "The Open Air Treatment of Consumption." It will of course be understood that the sanatoria are constructed with all the advantages theoretically supposed to aid in the fresh air treatment, such as perfect house ventilation, rooms exposed to direct sunlight, verandahs and solaria in proper and convenient positions, shelters in the grounds which may be turned away from the winds, walks through the grounds with graduated inclines, amusement rooms, and so on.

6. Actual treatment, as a rule, begins with the patient being placed in bed on his arrival and kept there, should the afternoon temperature rise to 100° F. or over; while the beds are daily

wheeled to some large window or protected open balcony. Symptomatic treatment of the pyrexia is practised by some; but as a rule it is not advisable or necessary, as reliance must be placed on the improvement of the nutrition, and the quieting influence of fresh air on the thermic nerve centres.

7. When the fever has for several days been practically reduced, the rest cure proper begins, in the patient being allowed to recline on an adjustable reclining chair on a balcony protected by glass shelters in the direction of the wind. This treatment at many sanatoria is continued from 9 a.m. to 9 p.m., the patient then going to his bedroom, where, even in winter, the window is left open, a screen only keeping off the wind.

8. While it is apparent that the condition of the patient must determine how long this treatment is to continue, both theory and more recent practice point to the time when with improved nutrition and increased strength gentle exercise may with advantage be added to the treatment. This is first attempted, unless in cases with recent hemorrhages, by breathing exercises, which are not more than the simplest movements which are taught our school children, increasingly to the more complicated ones of our manual of military drill. As progress is made, walks for graduated distances, and at different inclines, are permitted, and finally games and recreation, as bowls, tennis, boating and cycling are indulged in in moderation, while at the municipal sanatoria it is found that a notable improvement in patients has taken place where light gardening, household work, basket-making, and similar light industries have been introduced. Both from the evidence in many cases where ranching or outdoor life in the mountains has been taken up by consumptives, as well as from our every-day experience of the effects of exercise on nutrition and reconstruction of tissues, there can be no doubt but that under wise supervision, both from the physical and mental standpoint, such employments play an important part in promoting cures. Indeed, Dr. Hans Weicker, of the Krankenheim, at Gorbersdorf, where a large number of work-people have been treated during the past five years, states that this class of patients improve decidedly more rapidly than the better classes, especially since some employment had been provided.

9. As adjuncts to treatment, some sanatoria have baths in which a more or less elaborate system of hydrotherapy is carried out according to the views of the medical superintendent. There is, perhaps, no sanatorium in which the benevolent tyranny is more exercised than at Dr. Otto Walther's sanatorium at Nordrach in the Black Forest. Walther trains his patients to stand even draughts, and makes the cold douche a means of giving resistance and tone to the peripheral circulation. Per-

sonally, I am convinced that the hot and cold bath play an important part if intelligently administered through improving the general tone and skin circulation; since it is common observation that the elimination of waste-products by the Turkish bath may safely go on without danger of a subsequent cold.

10. The question of the food of consumptives has been greatly discussed, and, as all are aware, much has been said which seems contrary to our observations and experience in the general question of assimilation and nutrition. At present, I believe it may be said that most physicians to sanatoria are agreed that a generous and nutritious diet, food well cooked, palatable and easily digested, is productive of the best results. We are all aware of the great change which has taken place in the feeding of typhoid patients. It used to be a standing order to give two quarts or more of milk daily, regardless of whether a diseased intestinal tract could assimilate a pint or not, ending, naturally, in discomfort, and the constant production of toxins. The same must necessarily be the case in the ill-regulated feeding of the phthisical. In nothing, however, will the personal and professional qualities of the physician be more tried than in this matter. The patients have already in most cases been suffering from dyspeptic troubles, especially of that persistent form, the intestinal, so closely associated with the neurotic type. Anorexia must be overcome by gentle persuasion, assisted more largely by the fresh air than all other agencies, and perhaps passive exercise and massage; while the use of lavage and the best intestinal disinfectants will prove of notable advantage.

11. The use of fats and oils, amongst which I would place first cod-liver oil, has been the subject of much discussion as regards their utility in the treatment of this wasting disease. We are all aware of the various theories regarding the emulsifying of fats through the action of the secretions, especially that of the pancreas, and may fairly assume that the amount of this, as of other secretions, is affected during an anemia, such as that commonly present in phthisis. Recent experiments seem, however, to make it clear that fats are absorbed in a soluble form as fatty acids, and that the biliary and pancreatic secretions simply increase the solubility of the fatty acids. However that may be, there is in my experience a very notable distinction to be made in the readiness with which the two forms of carbonaceous foods, the starches and fats, are assimilated by many persons, especially persons with a weak intestinal digestion. In the case of starches it is common knowledge that the patient of the neurotic type must use certain starches, as that of the potato, very sparingly if intestinal fermentation is not to result, and the constant use of white bread can, I

believe, in such patients be often restricted with much advantage. On the other hand, it is common observation that persons of sedentary habits are increasingly refusing to eat fatty foods, as fat meats, butter being the only form of fat seemingly palatable. Now it has been a matter of personal observation that oils used, as olive oil in southern climates, in large amounts, and the best purified cod-liver oils can be used with the best effects in many patients to whom, owing to their not being a common article of diet with us, they may seem at first nauseating. Their utility, in my opinion, depends upon three distinct causes: (1st.) They serve, owing to their oily nature and to their being broken up in the intestine into fatty acids and glycerine, as laxatives and lubricants of the intestinal walls; (2nd.) They are but slightly acted upon by bacteria, although in the absence of bile and pancreatic juice they may be decomposed into fatty acids and be largely discharged unabsorbed. And (3rd), when they are absorbed by the columnar epithelium of the villi, they are carried directly to the central lacteals, and thence directly to the thoracic duct, instead of going, as in the case of starches and proteids, into the portal circulation for elaboration in the liver. What is of equal interest and importance is that fats do not increase the glycogen of the liver, and hence relieve that organ of the elaboration necessary to convert this carbohydrate into material assimilable by the tissues. Moreover, the simple constitution of the fats—that is fatty acids and glycerine—with the small amount of oxygen in their constitution, compared with starches, would seem to make them more readily converted into heat and energy by the oxygen conveyed by th hemoglobin of the red blood-corpuscles. I have thus at some length attempted to give my reasons for urging the increased use of the more palatable fats, since I am convinced that the habits of our more civilized life tend greatly to a decrease in their use to the detriment of the general health, and the tendency to wasting diseases, even in those not suffering for the moment from anemia or phthisis.

12. The question of the use of alcohol has been much discussed within recent years, followed by a growing tendency to its complete disuse as a means of reconstruction of tissue. Speaking exactly, I believe it may be said that its use, except in patients with strong digestions, is contra-indicated, except as a temporary stimulant, owing to its disturbing effects upon the glycogenic functions of the liver in the large proportion of patients of the neurotic type. If, however, ales and porters are well borne, I am of the opinion that they will prove of value as productive of heat and energy in the reconstruction of tissue.

13. With regard to the proteids, it is hardly necessary to say that meat, milk, eggs and similar articles of diet will be used up to the limit of their assimilation by the system.

14. Having dealt with the ordinary methods of treatment, it seems proper to refer to some of the details of special varieties of treatment developed within recent years. Among these I would refer first to that which, in patients deprived for a time of the privilege of active exercise, most nearly takes its place, viz., *massage*. Its value as an aid to the metabolic changes taking place in tissues cannot be over-estimated. Sir Michael Foster remarks: "In this way an enormous metabolism may be excited, and yet so carried on that the body gains both in flesh and fat," and illustrates this by a case where a patient in fifty days increased in weight from 45 kilos to 60 kilos, the average daily ration of 100 grammes of proteids having been increased to 150 grammes over the whole period. Where active exercise becomes possible this, of course, may be largely dispensed with.

15. The effects of reduced air pressure in the climates of high altitudes have been frequently commented upon, and in view of the physiological explanations given of such influence upon hemopoiesis, or the increase of red blood-corpuscles, and the deepening of the inspirations, we seem to have the best reasons for endeavoring to imitate such conditions by means of a room so constructed, with a gas engine arranged so that the air pressure can be reduced. Another apparatus which, while lessening the air pressure on the chest-walls, enables the patient to breathe air of normal density, is the "pneumatic cabinet." It varies in its details and completeness, but I am convinced that this direct means of deepening the inspirations and setting unused corners of the lung tissue to work, will have a definite therapeutic value if scientifically practised.

16. As regards the dress of patients, it need only be said that loose-fitting clothing, with flannel underwear of sufficient warmth, is all that is required; while, of course, care in protecting the feet by felt shoes and overshoes in damp or cold weather would be exercised.

17. As regards the symptomatic treatment of patients, it is impossible here to enter into details. The most that need be said is, that the various measures which every physician practises for dealing with the several phenomena presenting themselves in this as other diseases would be drawn upon. Nasal and throat abnormalities or diseases will demand appropriate remedies, hemorrhages, night-sweats, and the errors of digestion, must receive proper attention; and, indeed, our full armamentarium will be called into requisition in dealing with the emergencies arising in the many patients of a sanatorium.

18. Personal hygiene in the case of sputum, the careful disinfection of the buccal and nasal cavities, and the careful instruction of patients in all matters of personal control, will

necessarily become an important part of the duties of a medical superintendent. He has not only to consider the life of his patient while under his supervision, but he must further inculcate such rules of life as will be most likely to be beneficial to patients when they return to their homes, and enter once more into some occupation. Much might be said on this point did time permit. Personally, I am of the opinion that in very few instances can patients return to the sedentary pursuits of urban life with safety. The very conditions of success in the air-cure seem to point to out-door occupations as being alone those where the maintenance of good health can fairly be expected. It may be quite true that such conditions will be difficult or impossible of fulfilment; but we are dealing with a condition rather than a theory.

In concluding these necessarily imperfect remarks, I cannot overlook the, perhaps, most important part sanatoria will play in lessening the fatality from tuberculosis. They are essentially prophylactic, first, by receiving patients from small, often insanitary homes, where they are not only possible but almost certain centres of infection. Thus of the 663 tenements in 1896 in a single ward in New York, 37 per cent. had one or more cases of consumption, there being 81 per cent. of cases to every house; while in a statistical study made of the deaths in Huron County for ten years—1889-1898—I found that 33 per cent. of the total 633 deaths were of persons having a name recurring two or more times. Thus sixty names occurred twice, twenty-five names thrice, ten names four times, two names five times, six appeared six times, and one was found eight, and one nine times. It is further found in answer to inquiries made on post cards accompanying specimens of sputum for examination in the laboratory, that a notable proportion report other cases at present existing, or having existed in the house.

But the sanatoria will prove a perhaps equally important factor in becoming educational centres from which persons will return to their homes and there preach the gospel of cleanliness. And, indeed, all evidence is going to show that our ideas of cleanliness will not avail to prevent danger of infection to the well where the expectorating consumptives live and are employed. Most stringent directions are given in sanatoria against coughing, except into some paper or cheese-cloth handkerchief which can be destroyed, since moist particles of sputum fly into the air, remain suspended for several hours, and when such disappear they deposit their bacilli on walls and floors to rise again as dust. Dr. E. R. Baldwin has published most interesting experiments where the washings taken without warning from the hands of ten private and eighteen

sanatorium patients at Saranac Lake were inoculated into guinea-pigs. Half the private patients used cuspidors and occasionally their handkerchiefs, the rest used cuspidors or cloths. The sanatorium patients all denied using handkerchiefs. Their hands had been previously washed within from ten minutes to twelve hours. Of the ten private patients eight were the means of inoculating either one or both of the test guinea-pigs. Of five sanatorium patients whose washings were injected, two infected one guinea-pig only, the disease resulting being of a very chronic and localized type. It was noted that it was the private patients who insisted upon the use of handkerchiefs who furnished the cases of severe infection. The lesson thus taught is obvious.

In conclusion I wish to refer to a matter which I have referred to before in speaking to physicians regarding persons in their practice whom they find tuberculized. We have already seen how large a proportion are not diagnosed until the disease has become well advanced. It is apparent that if further delay in taking prompt action occurs, the double injustice is done both to the patient and to those living with him.

I am quite well aware how inconsiderate such patients and their friends often are, and how a physician, after losing a few patients by his honesty, is slow to tell a patient the truth. But a wise discretion will, in most cases, result in retaining the confidence of the patient and family, while the consciousness of having performed a plain duty will be a source of personal satisfaction. I quote the words of Dr. Trudeau, of Saranac Lake, a man beloved by all who know him, and one than whom no one has devoted for twenty years more singleness of aim and scientific energy to the study of the protean phases of this disease:

"As soon as the diagnosis of tuberculosis is established, particularly if the bacillus has been demonstrated in the expectoration, no matter how well the patient may appear, he should at once be told the grave nature of his malady, and an immediate removal from his surroundings should be urged, while it is explained to him that the best and possibly the only chance of restoration lies in prompt action and the adoption of thorough measures. Although obedience to this advice undoubtedly necessitates great sacrifices on the part of the patient, he will, if it is at all possible, rarely hesitate to make them, provided the gravity of the situation is plainly laid before him and the necessity for prompt action explained; and if this is not done, he will be called upon to make the same sacrifices later, and when they can prove of little or no avail.

The position physicians take who purposely deceive

patients as to the nature of their malady by telling them the bleeding comes from the throat, or that they have influenza, malarial disease, or bronchitis, is difficult to understand, and does the patient a grave injustice.

"It will be justly urged that in a great majority of cases among the poorer classes it is absolutely impossible for the patient to follow the advice given. This is greatly to be regretted; and while it in no way relieves the physician of the responsibility of making an early diagnosis, and advising prompt and radical measures to those who can afford to follow his advice, it is a strong plea for attempting to provide sanatoria for a greater number of these unfortunates, where they can find, at a moderate cost, the climatic and hygienic surroundings necessary for the treatment of their disease as soon as its presence is recognized."

It seems, therefore, evident that what the present situation demands for the treatment and prevention of this disease is before all things a recognition of its curability by prompt action in its early stage, of the certain danger to the patient in delay, and of a daily increasing danger to those with whom he is constantly associating.

To meet these several desiderata we may say that in practice, sanatoria properly constructed, equipped and officered, will alone be found adequate.

THE PREVENTIVE AND CURATIVE TREATMENT OF PULMONARY TUBERCULOSIS.

BY GEO. H. HODGE, M.D.,
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Mr. President, and Members of the London Medical Association:

The importance of the subject which we have met to discuss this afternoon is shown by a reference to the report of the Registrar-General of the Province of Ontario for the year 1898. It is there stated that from tuberculosis alone there occurred 3,291 deaths in 1898, while from such prevalent and dreaded diseases as typhoid fever, measles, scarlet fever, whooping-cough, diphtheria and pneumonia there occurred a total of only 3,014 deaths in the same period of time. Add to this the fact that many die of tuberculosis where the real nature of the disease is unsuspected and the deaths are set down to other causes, and the importance will be still further emphasized.

Is pulmonary tuberculosis curable? Most of us here can recall the time when it was looked upon as incurable, but there are at the present time few medical men in active practice who will venture such an opinion. Why this change of view with regard to the curability of phthisis? Let me answer in the words of Dr. J. Kingston Fowler in a lecture delivered at Brampton Hospital about one year ago:

"It is certainly not because of the discovery of some drug which will effect this result, because we know of none. It is because truth as to the pathology of the disease has displaced error and because now when we speak of 'pulmonary tuberculosis' all men know what we mean, whereas formerly when one spoke of 'phthisis' only the speaker knew (or thought he knew) what he meant. So long as a positive clinical test for tuberculosis of the lungs was lacking, those physicians—and they were neither few nor obscure—who believed in the existence of the conditions variously termed 'catarrh of the apex,' 'congestion of the apex' and 'the pre-tuberculous stage of phthisis,' regarded every case of the kind, in which the symptoms and physical signs disappeared and the patient regained health, as an additional proof of the soundness of their belief in the non-specific nature of the affections. They rarely observed the arrest of consumption, because if the patient got well it was almost certain that he could not be suffering from consumption. When, however, owing to the researches of Koch it became possible to apply such a test, the falseness of this view was speedily demonstrated, and to-day the discovery of tubercle bacilli in the

expectoration is accepted by all as a proof of the presence of tuberculosis of the lungs."

In order that we may treat this disease rationally, it is important that we should know its causation, its anatomy, and be able to recognize it early, as it is only in the early stages that we can hope for the best results in the application of the remedial treatment.

Etiology.—We are frequently asked by the laity, "Is phthisis catching?" The researches of Koch have enabled us to give an answer in the affirmative to this question. Even before the bacillus was discovered, the disease was looked upon as catching by Italian as also by some English physicians.

Another question that the laity frequently ask is, "If the disease is catching, how is it that so few comparatively contract it, although all must be exposed?" There is no doubt that of the many exposed only a few really develop the disease, which proves that while it is infectious, there is another factor in the causation of, at least, equal importance. This other factor is the susceptibility of the individual exposed, *i.e.*, there are in this, as in all other such cases, two factors—the seed and the soil.

How is the tubercle bacillus (the seed) disseminated? There is now no longer any doubt that the sputum is the chief means of dissemination. The room in which the patient lives may become infected and may thus become a factor in the spread of the disease. Patients who are able to go around and attend to business may infect others by carelessly expectorating on the street, or in the office or wareroom. While dried sputum is an undoubted and probably the chief means of propagating the disease, it is not the only one. Dr. Clifford Allbutt, in a paper read at the meeting of the British Medical Association in 1899, says: "The recent researches of Flügge make it probable, indeed, that the virulence and active diffusion of the microbe is secured more by the spray of the spittle than by the heavier and more voluminous parts of it. His experiments on the survival of the bacillus in the dry handkerchiefs of the consumptive patient went to show that therein lurks less peril than in what I may call the spindrift of the cough, some of which caught on slides hung before him, proved very virulent. The practical inference is that spittoons in living rooms, if not carried about, should stand on pillars some four feet high. . . . If then we may work upon the hopeful proposition of no tuberculous animal, no tubercle—that the bacillus is found only about tuberculous animals—we open out the amazing prospect of abolishing tuberculosis as in our own country we have virtually abolished leprosy."

Milk from cows whose udders are affected is a prolific source of tuberculosis, especially in children.

What are the conditions which predispose the individual?

1. *Heredity.*—I am aware that there is a tendency at the present day to minimize the importance of heredity as a factor in the causation of tuberculosis, however, I am fully convinced that it does play an important part. In all cases coming under my notice I make a point of ascertaining whether or not the disease has existed in either parent or other member of the family, and find that such is the case in a vast majority of cases. This cannot be a mere coincidence. In what way does heredity act? While it is possible that the bacillus may be transmitted directly from parent to offspring, yet this must occur so seldom as to enable us to ignore this means of propagation. The generally accepted view regarding heredity, and I believe the correct one, is that the parents transmit to their offspring a special liability to pulmonary tuberculosis.

2. Any condition which will induce loss of resisting power such as absence of fresh air and sunlight, damp, undrained ground, improper food, indoor occupations, etc.

3. Previous disease. Pleurisy is supposed to predispose to pulmonary tuberculosis, but in what proportion of cases tubercle of the pleura is primary and in what secondary, is in our present state of knowledge impossible to say.

Bronchial Catarrh—which is supposed to be a predisposing cause, may rather be a part of the tubercular predisposition.

Anatomy.—In order that we may recognize the disease early, it is important that we should know where it begins. This has been proven to be in the great majority of cases in the apex of the lung, not the extreme apex, but from an inch to an inch and a half below, rather nearer the posterior and external borders. Another usual site of the primary affection corresponds on the chest wall with the first and second interspaces below the outer third of the clavicle. Secondary infiltration of the lower lobe occurs early, and is situated from one inch to one inch and a half below its highest point. This situation corresponds on the chest wall to a point opposite the fifth dorsal spine, midway between the border of the scapula and the spinous processes of the vertebræ. Inasmuch as infiltration of the lower lobe occurs early at this site in pulmonary tuberculosis of the chronic and fibroid varieties, it is of the utmost importance to examine this part of the lung, as the recognition of a lesion here, especially if coincident with physical signs at the apex, is, in the opinion of Dr. J. Kingston Fowler, almost positive evidence of tubercular disease of the lungs.

Although all parts of the lungs are equally exposed to infection and all are alike equally concerned in defending from the invasion of the microbes or toxins, yet the upper parts of the lungs are first affected, in almost all cases. How is this?

According to recent researches, particularly those of Birch-Hirschfeld, who has made casts of the bronchial tubes in fusible metal, this part of the lung (upper lobe) suffers from certain mechanical disadvantages. He shows that the apical bronchi in the adult take a very steep direction upwards, so that to pass from the main bronchus to the apical bronchus, the air stream must be diverted, almost at a right angle, while the course of all other tubes is either straight or at a very large angle. He further points out that on coughing a backward air current may be forced into these vertical branches, whereby infectious foreign bodies may be wafted into relatively inactive areas. He has shown that even in health these upward tubes are liable to sink a little, and so to increase their naturally somewhat spiral curves, especially in weak, flat chests. Thus stagnating areas or even kinks and pouches may be formed, in which foreign bodies or ordinary secretions may gather and form excellent media for the reception of microbes and other dust.

How do the bacilli gain entrance to the lungs? Excluding the comparatively few cases in which they enter by direct extension from neighboring lymphatic glands, they may be said to enter in one of two ways: either through the blood-vessels or through the bronchial tubes. When they enter through the blood-vessels the source of infection is usually a caseous lymphatic gland, in which case they usually set up a disseminated miliary tuberculosis, exceptionally a circumscribed lesion of the lung. The infection is here set up by an embolic process, the bacilli being arrested in the alveolar capillaries, in the walls of which they provoke a specific cellular growth, from which the process soon extends into the cavity of the air-cells, where a similar cell-growth develops.

The mode of infection which interests us most, and is by far the most common, is that through the bronchial tubes. When this is the mode of entrance, the investigations of Birch-Herschfeld have demonstrated that the bacillus settles upon the mucous membrane of a bronchus between the third and fifth magnitude, in the posterior apical bronchial area, that then, if circumstances are favorable, having implanted itself securely upon the part, it breeds and goes through the manufacture of secondary products, such as small cell infiltration and giant cells in the sub-epithelial layer; a thrombosis of the tube is established, beyond the block, atelectasis of the corresponding distal area then ensues, with secondary inflammatory and obliterative processes, and later with circumscribed pleurisy. On the proximal side of the block the tube dilates, fills with degenerate secretion and undergoes softening and ulceration, until it may rupture. Such a rupture of the softened wall may follow a muscular effort or strain, and by way of it

tubercle bacilli and septic tissue products may then first be swept into the sputum, or by aspiration into other pulmonary areas, or again, the mass may be detached and expectorated; in either case latent becomes manifest tuberculosis.

Diagnosis of Early Tuberculosis.

Treatment that will secure the greatest number of recoveries requires to be applied early, hence the importance of early diagnosis. The symptoms requiring special investigation are the cough, sputum and temperature.

Cough is a pretty constant symptom, at first short and frequent, but sooner or later accompanied by expectoration.

Sputum.—In the early stage the sputum is scanty and mucoid, later it becomes muco-purulent and viscid. It should be examined early for the bacillus, and this examination should be frequently repeated, if we are unable to demonstrate its presence. We must remember that absence of the bacillus does not prove absence of phthisis, while, on the other hand, its presence is positive proof of the presence of the disease.

Temperature.—Methodical and frequent estimation of the temperature is very helpful. It should be taken at least every two hours, between 8 a.m. and 10 p.m. It is generally agreed that the pyrexia of tuberculosis attains its maximum, and may often be exclusively present, in the afternoon. A slight evening rise of temperature may be one of the earliest symptoms.

Physical Signs.—We must now remember the regions where physical signs are usually first to be found. In all cases where the symptoms suggest phthisis, the lungs are to be very carefully examined, particularly the apices. Corresponding points of the two sides are to be compared with the utmost precision. In percussing it is well to use light and single strokes. If atelectasis distal to a bronchial thrombus has taken place, there will be a slight alteration in pitch in the area deprived of air.

The earliest physical signs are usually obtained by auscultation, in practising which we should first ask the patient to breathe naturally, then deeply, and lastly to cough, and immediately follow it by deep inspiration. Apical lobular collapse being common, it follows that weakened respiratory murmur will also be common. This is frequently associated with increased vesicular murmur at the apex of the unaffected side. Another early sign is furnished by harshness of the breath sounds. The expiratory murmur is prolonged and raised in pitch. Moist sounds may be absent in incipient cases, but if a click is heard it is strong evidence of tuberculosis. In a case that was referred to me for examination a couple of years ago, the only physical sign that I could detect was a slight pleuritic friction over the posterior part of the left apex. Upon this

sign I based a diagnosis of phthisis, and under treatment the patient improved very greatly. She again came to me for examination a few days ago, and now there are very evident signs of disease in the upper lobe on the left side, and also in the upper part of the lower lobe. Upon inquiry, I found that during the past winter she had not carried out the directions formerly given to her, but instead had been taking various remedies vaunted as sure cures for consumption.

In cases where we are unable to satisfy ourselves as to the nature of the disease from the symptoms and physical signs, we may resort to the use of tuberculin. While the use of this remedy is not free from danger, it is said by those who have used it, that if the patient be kept in bed till the reaction completely subsides, it may be used with impunity.

Treatment—Preventive.—The two great sources of danger, we have seen, are milk and sputum. A tuberculous mother should not nurse her child, but should procure a wet nurse, or failing that, feed it artificially.

Milk, particularly when intended for children, should be boiled or preferably sterilized. Possibly the time may soon come when such action will be taken by the Government as will result in the elimination of the disease from cows, but till such is the case the milk should be boiled or sterilized.

The sputum of all tuberculous patients should be either destroyed or disinfected. Patients should be warned that if they do not carry out the directions for the destruction of the sputum, they will very likely be the means of conveying the disease to other members of their family, and others with whom they come in contact. Patients, when going about, must carry a receptacle for the expectoration, and faithfully use it. The contents of this must be destroyed at least twice daily by burning, and the vessel washed with boiling water and some disinfectant. Pocket handkerchiefs should not be employed, except in the form of soft paper, which can be at once burned. Tuberculous patients should not be sent into the wards of a general hospital, but should be cared for in special sanatoria. The Hon. Mr. Stratton deserves the thanks of every member of the medical profession, as well as of every inhabitant of Ontario, because of the bill he introduced at the last session of the Provincial Legislature, whereby he makes it possible for municipalities to provide institutions where such patients can be properly cared for, and at the same time reduce the danger to others to a minimum.

Houses occupied by tuberculous patients, or in which such have died, should be thoroughly disinfected and cleaned.

In predisposed persons, the importance of a good general hygiene cannot be over-estimated. The ground upon which

their dwellings stand should be thoroughly drained. They should have an abundance of fresh, pure air by night as well as by day. Open bedroom windows should be the rule. There should be no dark rooms in their houses. Excesses of all kinds must be avoided.

Curative Treatment.—In the cure of this disease two factors are involved, viz.: the destruction of the bacillus, and the increasing of the powers of resistance of the patient.

1. The destruction of the bacillus. Heretofore, treatment with this object in view has not been successful. The means by which it has been attempted are tuberculin and serum from immune animals. Tuberculin, when first introduced, was extensively used, and rapidly fell into disrepute because of the unfortunate results that followed its use. The serum treatment has been used chiefly in Italy. Physicians outside of Italy who have tried the serum originally prepared by Prof. Maragliano, of Genoa, have not found it as beneficial as Italian physicians have. The tuberculin and serum treatments as at present practised are unreliable and for the most part useless.

Our main reliance in the cure of the disease rests on the carrying out of the second factor, *i.e.*:

2. The increasing of the resisting powers of the patient. How is this to be done? By promotion of nutrition. The nutrition of the patient is to be promoted:

(*a*) By suitable food, given in such quantities as to secure assimilation and digestion. In cases unattended with symptoms of indigestion, it is well to allow patients to take food much as they would in health, not restricting them to any particular kind of diet, unless it be to increase nitrogenous and fatty foods, especially encouraging them to eat plentifully of butter, and drink unsparingly of cream, and at the same time diminish carbohydrates, which latter phthisical patients do not seem to digest well. A large percentage of phthisical patients present symptoms of indigestion, which makes the management of their cases difficult and very often unsatisfactory, inasmuch as they are unable to take food in quantity sufficient to promote their nutrition. In these cases some advocate "forced feeding," but how these patients, whose digestive systems are already deranged, can take, digest, and assimilate more food than if their digestive systems were healthy is difficult for me to understand. It seems to me more rational to restrict the diet, in such cases, to liquid food of an easily digestible nature, to such time as the gastric functions are restored, and then from time to time to add on such articles of diet as are found to agree with the patient. It is difficult to formulate a rule for feeding phthisical patients. The only satisfactory thing to do is to carefully study each case separately, and adapt the diet to the individual case. I would like to warn against what I believe

to be a pernicious habit; that is, giving patients who are able to take an ordinary meal, solid food between meals. There should be nothing given between, unless it be a glass of hot milk or beef-juice, either of which may be given with excellent results at bedtime.

Alcohol.—Under the head of diet we may consider the advisability of giving alcohol in some form. There are those who advocate its use, and who claim that it exerts a beneficial influence over the disease itself. For my own part, I have seen little, if any, benefit follow its use in these cases. On the other hand, I have known it to be decidedly injurious, by patients becoming addicted to its intemperate use. If used at all, it should be with the meals only, and in small quantity; for, if given between meals or in excessive quantity, it is sure to disturb digestion, and thus defeat the very object we have in view, viz., the nourishment of the patient.

(*b*) By seeing that the surroundings of the patient are such as to favor his nutrition. We should be careful to see that the dwelling of the patient is erected on ground where the drainage is as perfect as possible, as it has been shown that dampness is conducive to the growth of the bacillus. The house, in addition to being well drained, should be well ventilated and well lighted. One great difficulty I meet with in the treatment of phthisical cases is to get the patient to consent to an ample supply of fresh air in the sleeping-room. It is too much the habit in this country for people to shut out the fresh air during the cold weather by putting double windows on their dwellings. I insist on my phthisical patients discarding storm-windows, especially from their sleeping-rooms, and having a window open either in the bedroom or a room adjoining. Not only must the patient have a plentiful supply of fresh air in his sleeping-room, but he must during the day live in the open air. The length of time that the patient is to remain in the open air each day must be regulated according to the weather and the condition of the patient. It is wonderful how long phthisical patients can remain out in even very cold weather, when they are properly clad and wrapped. Dr. Burney Yeo, in his "Clinical Therapeutics," says: "It is to the possibility of being much in the open air, even in winter, which change of climate often affords, that it owes its great value." This opinion I have long held, and am glad to have it confirmed by such an authority as Dr. Yeo.

Change of Climate.—I believe if change of climate is to be at all useful it is in cases of early phthisis, occurring in persons capable of taking active exercise. The disease should be limited, non-progressive, and quiescent or but very slowly advancing, with little or no fever. I think it cruel to send patients away long distances from home when the disease is far advanced or

advancing rapidly. It is then that this class of patients should have rest and home comforts.

(*c*) *Exercise.*—In advanced cases most men are agreed that rest is indicated. In early cases, with nutrition well maintained, a considerable amount of physical vigor remaining, exercise is desirable as tending to promote appetite, digestion, and nutrition, and to help the expansion of the affected lung. Exercise usually involves life in the fresh air and the removal more or less from the vitiated atmosphere and the habits of invalidism of the sick-room.

(*d*) *Bathing.*—Patient should take a sponge bath every morning. It is well to have this carried out in a warm room in the following manner: He should stand in a tub which contains a few inches of warm water, or just enough to cover his feet, so that they may be kept warm till the patient is dressed. Beside him on a stand is a basin containing cold water, or water from which the chill has been taken. With a sponge lightly wrung out of this water the patient rapidly wets his entire body. Then dipping the sponge in the water, he squeezes it over the shoulders and chest, then rapidly dries himself with a coarse towel and then dresses, still keeping his feet immersed in the warm water. When dressed he dries his feet thoroughly. Bathing carried out in this way will be found refreshing and invigorating to most patients.

(*e*) *Clothing.*—Patient should wear underclothing the whole year, but of different weights for different seasons; thus he should wear a heavy weight for winter, a medium for spring and fall, and a light merino undersuit for summer. If proper precautions are taken with the underclothing, we need not bother much about the outside clothing, as common sense will, no doubt, dictate to patients proper changes, according to changes in the weather.

Certain medicines also improve the nutrition of the patient. The drug which holds the first place for this purpose is *cod-liver oil.* This is an easily digested fat, possessing high nutritive qualities, and at the same time it appears to have the power of aiding the assimilation of other foods, which would not be absorbed except in its presence (Whitta). It should be given in small doses (1 dr.) about one hour after meals. It is contraindicated when the patient's temperature is high, or when he suffers from catarrh of the stomach or intestines.

Hypophosphites are useful, especially in the early stages of the disease. They seem to influence the nutrition favorably, and doubtless any virtue they possess is due to this fact.

A number of medicines are used to assist in the restoration of the digestive functions, which are disturbed in almost all cases of phthisis. In fully 70 per cent. this disturbance, precedes the onset of the phthisis, and in the remaining cases it

shows itself during the course of the disease. So far as my experience goes, the treatment of the digestive disturbance is of paramount importance. It is in some of these cases of early phthisis that arsenic seems of special value, given in small doses before meals, or, if there is anæmia, in large doses after meals. In atonic cases, characterized by epigastric discomfort after meals, flatulence, nausea, and constipation, strychnia may be given along with the arsenic. In the irritable variety of dyspepsia, as indicated by acidity and vomiting, probably no remedy is of as much value as subnitrate of bismuth in large doses before meals. In cases attended with indigestion of carbohydrates, malt preparations are of value.

Antiseptics, especially creosote and allied drugs, have been extensively used, and in many cases with satisfactory results. Creosote has been used both by inhalation and by the mouth. The method by inhalation for the purpose of destroying the life of the bacillus is now obsolete. If when used in this way it exercises any influence whatever, it is by relieving the bronchial secretion. Dr. Fyffe, of Victoria Park Hospital, London, has shown, by injecting the sputum of patients into guinea-pigs, before and after the inhalation of creosote, that it exercises no influence whatever on the virulence of the bacillus.

Creosote, when taken by the mouth, appears to exercise a very beneficial influence. Dr. Fyffe made experiments with the sputum of patients taking creosote by the mouth, and showed that the bacillus became less virulent under its influence: the larger the dose the less virulent the bacillus. He gave from 2 to 12 min. three times a day.

Dr. Douglas Powell says: "In cases of acute phthisis, when the acute phase has passed; in cases also of more advanced disease when the hectic period has either passed or has much lessened in activity,—preparations of creosote and its congeners, especially guaiacol, are of distinct value."

Dr. Semon, of St. Thomas' Hospital, says "that the constitutional treatment by large doses of creosote cannot claim in any way, so far as my experience is concerned, to be looked upon as a true specific against tuberculosis, but it can be positively stated from a large experience, both in hospital and even more in private practice, in which the patients more strictly attend to their health, that as a symptomatic treatment it excels, at present, every other form known. The patients gain in weight, their appetites improve, the night-sweats diminish, the expectoration becomes less purulent, and in a good many cases, especially if not coming under observation at too late a period, the disease actually appears to become arrested. It is absolutely necessary, first, that the creosote preparation should be perfectly pure, and, secondly, that the capsules or pills be taken immediately after meals."

Clinical Note.

SCREW NAILS IN FRACTURES.

BY A. GROVES, M.D., FERGUS.

Some months since—to be exact, on the third of June last—a young man riding a bicycle was struck just below the left eye, close to the nose, by the point of a buggy shaft, which penetrated straight through, coming out behind the ear. He was carried along by the shaft until the tissues gave way. Amongst other injuries, the left articular process of the lower jaw was entirely carried away, and the jaw broken also on the right side. To keep the fragments in apposition was a difficult problem, owing partly to the great injury to the soft parts. It struck me that a screw nail would solve the difficulty, and accordingly I put the idea into practice. Holding the bones in position, I had them drilled by the aid of a dental engine, and on putting in a screw nail, perfect immobility of the break was obtained. In the necessary manipulations, I was ably assisted by Drs. Armstrong and Morrow. Since the above case occurred, I saw, with Dr. Nairn, of Elora, a case when in addition to a fracture of the femur and a fracture at the ankle-joint, with extensive contusion of the leg, there was a compound fracture of the tibica about the middle. To keep the fragments in apposition by the means ordinarily employed appeared to be impossible. Again a screw nail was used with the best results. My experience so far in the use of screw nails in fractures has been most encouraging, and I can strongly recommend the method, not only in cases of recent injury but in cases of ununited fracture, where operative measures are required. In my cases I had silver screw nails made by a local watchmaker, but ordinary wood screws would answer the purpose. It will be found much easier to put in the screws than to use silver wire; there is less disturbance of the soft parts, and the screws hold the fragments firmly, which wire never does.

Society Reports.

LONDON MEDICAL ASSOCIATION.

In place of the regular monthly meeting for November, a convention on the subject of "Tuberculosis" was held on the afternoon of November 13th, in the Y.M.C.A. building, to which all the medical practitioners of the county of Middlesex were invited; and in the evening a public meeting of the citizens was held in the City Hall, when the advisability of establishing a sanatorium for the city and county was discussed, and heartily approved of.

The Afternoon Meeting.

The London Medical Association, through its secretary, Dr. English, had issued invitations to all the members of the profession throughout the county to join with the members of the association in a convention, having for its object the consideration of tuberculosis and the best means of checking its increase, and one of the commodious lecture rooms of the Y.M.C.A. building was taxed to its utmost capacity by the gathering of earnest medical men who assembled. The chair was occupied by Dr. Balfour, president of the association.

Among the local medical men present were: Drs. R. M. Bücke, Macarthur, Niven, Williams, Hodge, Wishart, Hutchinson, Meek, Neu, Kingsmill, Nelles, Jamieson, John D. Wilson, Cl. T. Campbell, J. B. Campbell, Seaborn, Ovens, Henry Arnott, D. H. Arnott, H. A. Stevenson, W. J. Stevenson, White, Moore, MacLaren, Jarvis, Jento, Tillman, Ferguson, Alexander, D. H. Piper, Macklin, Moorhouse and Thomson. Among the physicans present from the county were: Drs. Lindsay, Thompson, Henderson and McCabe, Strathroy; Dr. Walker, Glencoe; Dr. Graham, Lobo Village; Dr. Glass, Poplar Hill; Drs. Hossack and Orme, Lucan; Dr. Mathewson, St. Mary's; Dr. Mitchell, Delaware; Dr. Hyttenrauch, Appin; Drs. Hughes and Ford Thorndale; Dr. Lang, Granton; Dr. Hotson, Parkhill; Dr. Anderson, Ailsa Craig, and Dr. McEwen, Melbourne. There were also present about twenty-five of the students in attendance at the Western Medical College.

Dr. George Hodge read an interesting and exhaustive paper on "The Preventive and Curative Treatment of Pulmonary Tuberculosis." He emphasized especially the necessity for diagnosis, if success in treatment was to be assured. He said

the most frequent causes of the spread of the disease were the sputum of patients and the using of milk from tuberculous cows.

Dr. P. H. Bryce, Secretary of the Provincial Board of Health, and to whom is due a great deal of credit for the magnificent work that is being done by the Board, laid before the meeting the need of sanatoria as the best and only satisfactory treatment for tuberculosis. He presented facts and figures that made evident the success which has followed this method of treatment.

After the conclusion of Dr. Bryce's remarks, a discussion followed, which was participated in by many of the physicians present. All of them expressed their concurrence with the ideas expressed.

The following resolution was unanimously carried:

Moved by Dr. Cl. T. Campbell, seconded by Dr. Niven, "That in the opinion of this meeting of representative physicians of London and the county of Middlesex, it is of the greatest importance, in the interest of the public health, that a sanatorium for the treatment of consumption should be established in this county, as experience has demonstrated that this disease is contagious, that it is preventible, that patients can seldom have proper treatment at home, that their presence in private houses is a source of danger to the community, and that public sanataria meet all the requirements of the case."

The Evening Meeting.

Mayor Rumball presided at the public meeting held in the City Hall in the evening, and with him on the platform were Dr. Bryce, Dr. Balfour, Dr. English, Rev. Dr. Saunders, Warden Murray, Sheriff Cameron and Mr. Thomas Coffee.

The mayor briefly outlined the purpose for which the meeting had been called, that of considering the establishment of a sanatorium, and said that the people of London were never appealed to in vain for anything having for its object the relief of suffering.

Dr. Balfour followed, opening his remarks by saying that the subject of combatting the spread of tuberculosis had already been considered from the scientific standpoint by the doctors' convention in the afternoon, and this meeting was for the purpose of increasing public interest in the movement. He drew a parallel between insanity and consumption, as both being cases in which the Government should step in and see that the sufferer from either should be prevented from being a danger to the community. A consumptive was dangerous not only to his family, but the whole community. Scarlet fever and smallpox

cases were immediately isolated, but with consumptives the danger was so remote it became very difficult to deal with the matter effectively. A person might have consumption for a year and a half without knowing it, and live for one, two, three years, or an indefinite period. In Middlesex county last year there were over one hundred deaths from consumption, over sixty of them being in this city. In the province the deaths from this cause last year were greater than from all other infectious diseases. It was established beyond all doubt that consumption was communicable. Seventy or eighty per cent. of the sufferers were from the artisan class, a fact that rendered sanatoria all the more essential, because they were generally not able to obtain proper home treatment. Drugs in the treatment of this disease are now given a secondary place, and the "outdoor treatment" is regarded as of first importance. Everyone is subjected every day to the infection of tuberculosis; it is largely a matter of individual resistance.

Dr. Bryce traced the recent history of several infectious and contagious diseases. He instanced diphtheria, and said that in thirteen years time the deaths had been reduced from 1,700 in 1887, to 350 in 1899. There were only 1,200 deaths in the province last year from all infectious diseases. But on the other hand, tuberculosis had not only not been reduced in its effects, but was actually on the increase. There was no subject to-day in the matter of health so important as the treatment of consumption. Not more than twenty-five per cent. of the cases of consumption were discovered even by medical men before being advanced to the incurable stage. At present one person in every nine in this province was dying of consumption. Dr. Bryce argued that, aside from its sentimental side altogether, the saving of 3,500 lives in this province was worthy of a great effort. There was a certainty of cure in some cases. Amelioration was quite possible in others. And in any event, sanatoriums would save the lives of the families of those afflicted.

"We simply call it a movement for sanatoria or homes in which there will be a prospect of recovery for the three or four hundred consumptives at present in the county of Middlesex." This, Dr. Bryce said. The Provincial Health Officer stated again that the purpose was to do something for the people of limited means, at a period when that effort would be effective. The doctor referred to the splendid system of sanatoria in Germany. He said the idea of a sanatorium was the same as every citizen tried to carry out in his own home—warm, light houses, an abundance of food and clothing, and regulation of life after common-sense methods. If private houses fulfilled these conditions in practice, there was no need to discuss the subject of sanatoria.

Dr. Bryce outlined the Government Bill. "At any moment that the council of any city or municipality, or combination of municipalities, desire to erect a sanatorium, they will submit at the annual elections a by-law, asking for a certain grant to be set apart by that municipality for this purpose. If that money is granted—and we will suppose for practical purposes that $20,000 is required in the county of Middlesex for such an institution—I am quite certain no more, practically, would be necessary, because benevolent persons, seeing the good being done, would erect a cottage here and there, enough to keep up with the growth of any requirements that might be made, and besides we know this, if we had our sanatorium thoroughly at work, our cases would be diminished. It is like an epidemic of diphtheria, where we isolate cases, and there are no more cases. Suppose a by-law is submitted in this county for $16,000, on the understanding that the Government will give $4,000, or up to 25 per cent. of what is expended. If you wish to expend more, the Government is limited to $4.000. One cannot conceive, with so plain a statement of facts, that there could be any question as to what will be done. The medical profession make money out of consumption. They don't cure many people. And if the medical men have in them that essence of the true physician, philanthropy, and are prepared to say, 'We have failed to lessen the mortality from consumption, and we ask you in the interests of the city and county to help us to take some practical step whereby we can do something for those who are dying every year in this county' —if the medical men say that, the public who are dying should not be slow to supply the necessary capital." The speaker stated that the Government would pay $1.50 per week for every patient until cured or deceased, and required the municipality to pay another $1.50, leaving only $2.00 per week at the outside to be provided by friends, lodges or private means. Dr. Bryce concluded by saying it was wonderful the effect of fresh air. In Germany, the windows of sanatoria were nailed down from the top.

Dr. Cl. T. Campbell, seconded by ex-Warden Elson, moved the following: "That we here present form ourselves into a local association, to be affiliated with the central association in Toronto, for the purpose of assisting in the distribution of literature in regard to the contagiousness of consumption and the need to be taken in regard to isolation in its treatment. And that a nominating committee be appointed to select officers, to be chosen as far as possible from different portions of the county, the committee to consist of the following: The Mayor, the Warden, Charles Taylor, Chairman of the Board of Health; Messrs. P. Elson, C. C. Hodgins, J. P. Grigg, Sheriff

Cameron, T. Coffey, Ald. Winnett, Drs. Niven, Moorhouse, English and Balfour, with power to add." The resolution was adopted.

Sheriff Cameron moved, seconded by Mr. C. F. Complin, "That having heard the lengthy and convincing arguments in regard to this, the most dreaded and destructive disease of the present day, we heartily approve of the advisability of the erection of sanatoria for the isolation and more successful treatment of the many sufferers from consumption; and that we urge upon the City and County Councils that active steps be immediately taken for the establishment of a sanatorium for this city and county." This resolution was also adopted.

Mr. W. C. Coo said it would be undesirable to have this white plague centralized in this city.

Dr. Bryce replied that the sanatorium would be built in the country. But, he asked, could anything be worse than to have the disease, as now, at every other door?

Mr. Peter Elson—Would it be compulsory upon consumptives to go to the sanatorium?

Dr. Bryce—It has not been conceived that it will be a necessary thing to compel people to go. The great question will be to have enough sanatoria.

Dr. Balfour, in reply to a question, said consumptives were not encouraged to go to the General Hospital.

Vigorous speeches were made by Warden Murray, Rev. Dr. Saunders, Rev. Canon Dann, Mr. Thomas Coffey, County Councillors Elson, C. C. Hodgins and S. P. Grigg, Mr. Chas. Taylor, Mr. J. W. Little, Ald. Winnett and M. H. O. Hutchinson. The county councillors intimated that the county would make a favorable response in the matter.

Votes of thanks were tendered to Dr. Bryce and the Mayor. Dr. Balfour gave praise to Dr. English and Dr. Macarthur for their efforts in bringing this meeting to pass.

W. W. ENGLISH,
Sec'y. London Med. Assoc.

Progress of Medical Science.

SURGERY.

IN CHARGE OF EDMUND E. KING, HERBERT A. BRUCE AND L. M. SWEETNAM.

Surgery of the Lungs and Pleura.

Extracts from M. H. Verneuil's paper, read at the meeting of the Société Belge, held in Brussels.

In this excellent study, M. Verneuil divided his subject into two chapters. In the first he considered the question from the point of view of diagnosis. In the second, he reviewed the different affections of the pleura and the lung capable of surgical treatment. He noted the indications for operation and the choice of procedure to follow. The whole paper is worthy of careful perusal. I can give only a few sentences.

The most thorough auscultation and percussion may afford information quite accurate enough for the physician, but not mathematically exact enough to enable the surgeon to proceed in safety. We have nothing to supply this lack of information. There are some points with reference to the stethoscopic localization of pulmonary sounds which are important to note. Tuffier, in the report presented at the Congress of Moscow, declared that when one attacks a pulmonary focus, if one trusts to information furnished by these sounds, one aims generally too low. Pierre Delbet affirms that that is true only for the part of the lungs situated below the hilum. For that situated above, one generally aims too high. Delbet says that the stethoscopic sounds are propagated along the bronchial tree in the direction of the inspiratory current of air, so that they acquire their maximum beyond the point where the lesion is situated. If the cavity is in the lower segment of the lung, the stethoscopic sounds will have their greatest intensity below it; but if it is in the upper segment, they will attain their maximum above it—one will be led to think that the lesion is higher than it really is; one will aim not too low, but too high.

This formula is perhaps too narrow; but there is no doubt that if the surgeon happens sometimes to cut directly into the cavity whose location has been indicated by the stethoscopic signs, it is often otherwise. In a general way, superficial cavities can be recognized with sufficient accuracy; but for deep lesions, we must reckon with the propagation, towards the periphery, of the phenomena of auscultation.

Among the methods of diagnosis summoned to our aid, we

must already place in the first rank, radiography and radioscopy. In a great number of doubtful cases, when auscultation and percussion have given insufficient results as to the exact localization of a cavity, the Röntgen rays have given excellent information. Collections between the lobes, inaccessible to the ordinary methods of investigation, have been thus diagnosed. In these cases especially, and in those of encysted pleurisy, this new method of exploration has already had many successes.

It is well to remember that thoracic wounds, especially those of the lower left side, are often accompanied by a wound of the abdomen. The surgeon must never lose sight of this possible complication, which nearly always requires immediate intervention.

At the time of the accident, a search for projectiles entering the chest must never be attempted. Such accidents may cause serious hemorrhage or pneumo-thorax, which require early intervention. On the other hand, they may give rise only to mild symptoms, and operative manœuvres would be all the more unjustifiable, as the projectiles generally become encysted in the tissues and remain there without giving any trouble to the patient. At times, however, the tissues in which these foreign bodies are lodged, become infected.

We must treat empyema as we treat an abscess—all the more so as the walls of the cavity have no tendency to come together. Why should tapping give better results in pleural abscess than in ordinary abscess? A broad pleurotomy is the rational treatment of purulent pleurisy. Gallet expressed this opinion in that remarkable thesis which he put forth in 1889.

Two additional questions are to be answered. Must we drain after pleurotomy? and must we employ lavage of the pleural cavity? All admit that we must drain, but opinions differ as to the method of procedure. I think that the simplest drainage is the best: two india-rubber tubes of unequal length, joined together like a gun-barrel. As for the thousand-and-one complicated methods, whose description would fill a volume, it would be difficult to prove that they have ever contributed to the final success. The question of lavage is a more disputed one. Many surgeons still highly extol it. Ferrier's opinion is as follows: "What makes us doubtful as to lavage is that, on the one hand, it does not seem that it can ever play an antiseptic rôle, and that, on the other hand, it may favor infection in two ways: by introducing new elements of infection, if it be badly done, or by diffusing, throughout the whole pleura, those elements of infection already existing there. We therefore think that it is preferable to dispense with lavage, if possible, and that, when we must employ it, it will be advisable to use only sterilized or saline water."

The results given by injections of artificial serum intended to replace the purulent exudate, after tapping; injections into the pleural cavity when incompletely emptied (iodoform emulsion, tincture of iodine, permanganate of potash, etc.), seem to have fallen into complete discredit.

Pathologically, there exists an essential difference between an abscess resulting from a pneumonia, and a tuberculous cavity. But when the time comes that the physician considers his efforts as useless, in both cases the surgeon can still intervene; not in order to stem the malady by attacking its causes, but with the view of giving exit to the products contained in a septic cavity; of preventing the organism from suffering from the pernicious influence of these products; of favoring, in short, by different methods, the removal of the cavity and the cicatrization of its walls. The surgical procedure will never change, or change very slightly; the indications will be different. We shall speak, in succession, of abscesses of the lung, bronchial dilatation, pulmonary gangrene and tuberculous cavities.—Translated from "*Annales de la Société Belge de Chirurgie*," by HARLEY SMITH.

OPHTHALMOLOGY AND OTOLOGY.

IN CHARGE OF G. STERLING RYERSON, J. T. DUNCAN AND J. O. ORR.

Clinical Study of the Ocular Symptoms in So-called Posterior Spinal Sclerosis.

Oliver presented to the American Ophthalmological Society a "Clinical Study of the Ocular Symptoms in So-called Posterior Spinal Sclerosis" (abstracted by *Archives of Ophthalmology*).

The series comprised more than one hundred cases. Oliver divides these cases into two series. First, those in which the symptoms are expressive of the optic type of the disorder: second, those in which they point to the spinal type.

In the first, he found a number of evidences of early inflammation in and around the eyes, a type of disorder which seemed to exert the brunt of its force upon the ocular structures, and even, in many cases, thus seeming to act beneficially upon the general system.

In the second, the signs of previous inflammation of the ocular nerve elements, though not so gross, were just as certain; this type of the disease exhibiting the greatest alterations in the general condition of the subject.

Unrecognized Symptoms of Eye Strain.

Starr, in the *Journal of the American Medical Association* (abstracted by the *Medical Review of Reviews*), speaks of a number of symptoms of this condition not usually recognized.

One of the most frequent of those is pain in the back of the neck. It is frequently mistaken for what is commonly called "muscular rheumatism." It may radiate down the back or to the shoulder, but is usually limited to the neck. The symptom has to be inquired for, however, as the patient does not think of it in connection with eye trouble. It is almost pathognomonic of eye strain, and exists in about eighty per cent. of the cases. It generally entirely disappears with the correction of the visual error. Another symptom is mental confusion, or an inability to fix the attention upon a particular object of thought without great effort.

Closely allied to this condition, and possibly in part depending upon it, is mental backwardness in children. Comprehension seems obtuse and slow. Frequently this condition develops rather suddenly in a pupil who has previously been a good scholar, and is then often accompanied by headache and other nervous manifestations. The correction of the existing eye strain changes all this, and the child improves mentally and physically. Instances are common in school, where a child is backward simply because of the effort required to see distinctly.

Irritability is another common result of eye strain in adults, as well as in children. We are all liable to become irritable if overworked, and it is easy to see how an eye strain kept up hour after hour for days and months may lead to the same result.

Vertigo is a symptom frequently associated with vision, generally with a refractive fault. The vertigo may be transient and slight, or marked and persistent, so much so as to suggest grave intercranial disease. This may be one of a group of symptoms embraced by the term "nervousness." A very high proportion of those who come to the oculist with refractive errors admit themselves to be nervous.

Probably the most frequent of all the results of eye strain is seen in disturbances of the digestive system. In many instances has it been observed that a recurrence of the symptom follows a disuse of the glasses, or is the first evidence of the need for a change of glasses

Voice Pictures—Their Production and their Photography.

J. Mount Bleyer, in the *Journal of Eye, Ear and Throat Diseases*, is most interesting. His instrument, the "Vibrograph," is very simple. The larger end of his tube is about

four inches in diameter, over this is tightly stretched a rubber diaphragm. The smaller end of the tube, into which he speaks or sings forms nearly a right angle with the other. Upon the diaphragm sand and emery powder are scattered. By sounding a definite note into the tube, as middle C, the sand and emery go into lines and form definite figures. Too loud a note will dance all the particles off, too soft a note will not move them. By singing certain notes and combination of notes, these figures can be changed into accurate reproductions of the forms of palms, trees and flowers. These can be photographed at will.

L. Webster Fox, M.D., of Philadelphia, sends a number of valuable reprints. Some of these are:

1. Implantation of a Glass Ball into the Orbital Cavity.

This must not be confounded with the Frost-Lang operation, in which the ball is inserted immediately after enucleation. The principle is the same, but Fox's operation is done where the eyeball has been previously removed, and where the tissues have so contracted that it is impossible to wear an artifical eye. The implantation of the glass ball makes an excellent stump, on which can be worn an artificial eye.

2. Epiphora, Lachrymal Abscess; Perigenital Absence of Lachrymal Punctae; Stricture of the Lachrymal Duct.

3. A Simple Operation for Divergent Strabismus.

This operation has been developed on the lines laid down by De Wecker, Grandclement, and Panas, but is simpler than either of them. The operation is divided into three parts and is performed under cocain. 1. Tenotomy of both external recti muscles and stretching of conjunctiva and Tenon's capsule. 2. Making the elleptic opening on one eye or both. 3. Suturing the opening. The paper was presented before the American Medical Association at its meeting in June, 1900, and marks a step in advance in the treatment of divergent squint.

J. T. D.

Editorials.

CANADIAN TRAINED NURSES.

We read in Toronto *Saturday Night*, a few weeks ago, an article on Canadian trained nurses, which caused us much surprise and deep regret. The general tenor of the article was to show that a large proportion of our trained nurses were better adapted for factory work than for any other occupation or profession. Beyond this there were certain unkind remarks as to the motives of those who desired to enter this profession and also on account of their conduct while engaged in their routine work. We understand that certain of our nurses feel somewhat indignant about the matter, but we do not think there is any occasion for worry on their part. The article was a poor weak thing in all respects, and evidently written by one who knew but little of what he was talking about. We can hardly think that the writer wished to seriously injure such a worthy and inoffensive body as the Canadian nurses, and we have a very decided opinion that if he ever has the misfortune to become very seriously ill, and is cared for by two nurses whom we can choose for him, that the manner of his editorial writing on the question of nursing will be forever thereafter materially different.

We fear that a large proportion of the public have only a very hazy idea of the status of the modern trained nurse. Let us consider, for a moment, what is being done in the largest and most important training school for nurses in Canada. We have at the head of that school the ablest superintendent of such training schools in the Dominion, if not the continent. Miss Snively, the lady in question, chooses very carefully from the hundreds of applicants which present themselves from year to year, and endeavors to select those who will be best fitted for the arduous duties which they are to undertake. Various matters have to be considered—education, general deportment, physical powers of endurance, tact, kindly disposition, and fondness for the work. To clear any doubt which may exist as to certain attributes, the candidates chosen are first put on

probation for a certain period, and finally those considered fit are selected. The nursing course lasts for a period of not less than three years, and the instruction received from the teaching staff is varied in nature and largely practical in character. We may say that it is as thorough and nearly perfect, and quite as exacting, as any such course can be.

What is the result? Not perfect, perhaps, but certainly as nearly so, we think, as we find in connection with any theological, medical or law schools. We have to acknowledge that there is something in the old familiar saying that a good nurse is born, not made. We also have to acknowledge that no matter what care is taken in the choice of material, certain disappointing results are likely to follow. Beyond this we have only to say in a general way, that the body of graduates from Miss Snively's training school are a honest, conscientious and skilful body of nurses, and at the same time have within their ranks a large proportion of the noblest sort of women that God creates.

LONDON AS A MEDICAL CENTRE.

The *Practitioner* of December again refers to the fact which has been so frequently discussed in recent years, that London, on account of the quantity and variety of its clinical material, should be the greatest medical centre in the world. It hopes that the development of the Polyclinic will soon bring about a "systematization and co-ordination" of the clinical teaching in that city which will largely help in the direction referred to.

The *Practitioner* thinks that there is already a great change for the better, and quotes from a paper published by Dr. Roose, of Washington, as follows: "Heretofore it has been the custom of American students to flock to the Continent and give London the go-by." But he says all this has changed lately with kaleidoscopic rapidity. The opportunities offered by the great metropolis for medical study and observation, either to the undergraduate or postgraduate, but more especially to the English-speaking student, are not excelled in the world. Dr. Roose is considered to have a good knowledge of the subject, because he has made frequent visits to the various European cities during the last twenty-five years.

Dr. Roose has also something to say about the mannerisms of doctors of various countries. "He contrasts the hat-play politeness of the French with the bluffness and sincerity of the Englishman. Of the Germans, he says that while they are immense workers and patient investigators, they can dive down deeper into a subject, stay longer, and bring up more mud than any other people. In German hospitals, after some bungling operation, he has been greeted with the remark—addressed to him in the belief that he was a Britisher—'Oh, you do this better in your country.' The Italian physicians of to-day, he pronounces to be among the best in Europe; in certain specialties, as medical jurisprudence, neuropathology, criminal anthropology and hygiene, they occupy the foremost rank. While admitting that continental life is in some respects very attractive, Dr. Roose holds that 'for genuine solidity, usefulness, and the civility of treatment that one experiences in London, commend an English-speaking rather than a French community.'"

We must confess that this, coming from a shrewd, clever and observant American, makes pleasant reading for us in Canada, who have long believed that in Great Britain are to be found the most solid, the most level-headed, the most practical, in short, the best surgeons, physicians and obstetricians in the world—outside of Canada.

THE ACTIONS AND USES OF DIGITALIS.

Since the days of Wuthering very much has been written and spoken on the uses of digitalis. It is now admitted that it is a drug that may do much good or evil, according to the skill with which it may be administered.

There is no small fear in the minds of some regarding its cumulative effects; but almost all drugs have a cumulative effect. Give more strychnine than can be eliminated and spasms will in time come on; or, if calomel be taken in slightly larger doses than the system can tolerate, in some days there may be salivation. In the same way arsenic may accumulate and give rise to neuritis, lead to paralysis, and iodine to iodism. The truth is, with ordinary care in prescribing of digitalis and watching

its effects on the digestive organs, the heart's action, and the arterial tension, there need be very little fear as to its cumulative effects.

Digitalis acts on both the heart and arteries, especially the arterioles. Further, it is a settled fact that it acts on the heart and arteries both through the nervous system and the muscle tissue of these organs. It acts on the cardio-inhibitory and vaso-motor centres in the medulla. In these facts we have the foundations for the study of its therapeutic uses.

In the first place, anasarca and dropsy, with low pulse tension, are benefited by the use of digitalis. The arterioles contract and the arteries are kept better filled while the veins are better emptied. In this way the fluids are taken up from the tissues and cavities of the body, the flow of urine is increased, and the heart's action gains in strength. It is a well-established fact that digitalis acts very much better in dropsy with low tension than with high tension. When dropsy and high pulse tension are found together it is necessary to reduce the tension before the digitalis will act. Here the beneficial action of a mercurial is specially noticeable as an adjuvant to the digitalis.

In fatty hearts much care is required in the use of digitalis. The heart's action is weak, though there may be no marked enlargement nor displacement. Such a condition prompts care. The heart may be markedly fatty, while the muscular tissue of the arteries shows no such change. In such a state of the vascular system, the digitalis would act on the vessels, and greatly increase the tension, adding largely to the work of the heart. Such an effect of the drug might prove disastrous. It is just in such a case, however, where the heart requires to be nourished. In combination with the digitalis some drug that will relax the arterial tension is called for. The iodides or the nitrites, along with the digitalis, will benefit such hearts.

Again, digitalis should be ordered with the utmost care in cases of aortic regurgitation. The increased arterial tension, caused by the drug, may give rise to a distinctly increased backward flow of the blood through the aortic orifice and induce serious syncope. When, however, the hypertrophy of these cases is failing and the heart dilating and becoming irregular, the proper exhibition of digitalis, along with arterial stimulants,

as the iodides and nitrites, will often add very much to the comfort of the patients.

There are few conditions where digitalis does so much good as in mitral inadequacy. Here the compensation of the heart is often bad; it is often irregular, and there is usually dropsy. Now all these indications pre-eminently call for digitalis. The systolic action of the heart is improved, its dilatation is lessened, and the mitral valves are brought closer to each other. The regurgitation is markedly reduced. The irregularity of the heart is also lessened. The arterioles gain in tone, the capillary circulation is brisker, the blood is forced along the veins, and the juices are gathered up out of the tissues. The change for the better is most marked.

There is another class of cases where the exhibition of digitalis holds out much hope of good results. All those cases usually spoken of as hemic or functional are really dilatation murmurs. These cases frequently follow some debilitating illness, as typhoid fever, prolonged anemia, or such like. In these cases the action of digitalis is very beneficial. The arteries gain in tension and the heart in force. In this way a richer stream of blood is sent through the coronaries. These vessels are better filled and kept filled under the improved arterial tone. The heart gains by this additional supply of blood. It gains in strength, its dilatation passes off, and what might have become a serious cardiac breakdown is cured by a judicious combination of diet, rest, and digitalis.

AUTO-INTOXICATION.

During the last ten years a good deal of excellent work has been done upon the subject of the poisons that may be generated within our own bodies, and that are now recognized as being capable of causing serious derangements of the health.

The bile is a secretion and an excretion. It is the former when it acts on the contents of the intestinal tract and aids digestion. It is the latter in so far as the bile contains constituents that would do much harm if they were not separated from the blood. So the thyroid gland, the thymus gland, the suprarenal capsules perform the double duty of separating some-

thing from the blood, and of adding something to the blood. Derangement of these organs may readily cause one or other or both of these functions to become perverted. Thus compounds that should be removed from the blood and changed may not be removed, and abnormal and injurious compounds may be formed and added to the blood stream.

In the instances of chronic diseases of the kidneys and in diabetes mellitus, very grave damage is done to the system by the existence in it of toxic products. The chemistry of these poisons has not yet been fully worked out, but much progress has been made along this line. In the intestinal tract very dangerous poisons may be generated.

Take the case of a healthy person who is making violent exertion. During this state of activity there is a rapid process of waste going on within the system. The skin is active and perspiration is free, consequently much of the waste is finding a ready escape. At this juncture, and while the system is still full of waste products, the skin is suddenly chilled. The elimination of the poisons cease, and most disastrous results to the person may ensue. Sir W. R. Gowers has directed attention to a very severe form of myositis and neuritis that may owe its origin to such a cause.

Imperfect metabolism and elimination will give rise to such conditions as neuritis, neuralgia, rheumatism, melancholia, asthma, headache, eczema, myxedema, acromegaly, and many others. There are three great groups of poisons that act on the system. First, the toxins produced by living germs, as those of diphtheria, syphilis, leprosy. These toxins are capable of originating grave diseases, as witness the neuritis of leprosy and the tabes of syphilis. The second group are those poisons of external formation, and that are introduced into the system in a dead form, such as lead, arsenic, morphia, alcohol, and such like. A long train of serious troubles may arise from these. Then there is the third group, those produced in the body by some fault in its own organs, or by a lack of due balance in the processes of waste formation and waste elimination. The group of diseases that owe their origin to this class of poisons are both numerous and important, because often severe and obstinate, such as some cases of neurasthenia, some psychoses, and some cases of severe anemia.

A faulty or arrested action of the skin, kidneys, lungs or liver will soon load up the blood stream with waste products. So would a perverted action of many of the glands throughout the body. While much attention has been devoted to the diseases due to a contagium vivum, it is not well to neglect the large and important group of diseases that are due to the chemistry of our own bodies. Our bodies are chemical laboratories constantly making new compounds and splitting up old ones. These processes should receive the closest study at our hands. A thorough knowledge of this vital chemistry is of the utmost value to every practitioner.

This process of auto-intoxication may be very materially accelerated by the introduction into the system of some of the poisons of the first or second groups. For example, the auto-intoxication that occurs in a case of granular kidney is increased very decidedly by the improper indulgence in alcoholic beverages, or the inhalation of lead fumes. In like manner the injurious effects of gout would be made still more injurious by the presence in the system of the virus of syphilis.

THE CENTURY'S PROGRESS IN NEUROLOGY.

In few fields of research has the past century been more marked with progress than in that of neurology. A century ago there was a veritable chaos, having only theoretical conceptions as guides, without a foundation of facts or observations. The structure and action of the nerve-centres were as a dead language to the anatomist. Of the brain nothing was known but the gross anatomy. The cord was regarded as a prolongation of the brain, and as a large nerve. The origin of all the nerves was placed in the brain. The existence of fibres in the brain was unknown, nor was there any knowledge of nerve cells. Nerves were described as like blood-vessels, with cortical membrane, and medullary substances. The pathology of the nervous system was limited to the study of gross lesions, and such diseases as hydrocephalus, hemorrhage, atrophy, hypertrophy, induration, softening and encephalitis. These conditions occupied the entire discussion for the first half of the century. With regard to the cord, up to the last thirty

years, its diseases were spoken of as epilepsy, chorea, tetanus, rabies, traumatic lesions, inflammations and malformations.

During the early years of the century, when almost all the anatomists denied the presence of fibres in the nerve centres, Gall and Spurzheim affirmed their existence. Their opinion was that all the nerves took their origin from the grey matter. They held that the cord was a group of centres, rather than a large nerve, prolonged from the brain. They held the view that there was difference of structure as well as difference of function.

About a quarter of a century passed when the experiences of Bell and Magendie began to bring confirmation. In revealing to us the differences of function in the anterior and posterior roots, and the white bundles of which the cord is formed, the labors of these illustrious physiologists laid the foundation of our knowledge of the spinal cord. But the study was almost entirely on symptoms as anesthesia, hyperesthesia, paralysis, contractures and spasms, rather than on nervous diseases proper. The pathology underlying these had not been discovered.

Towards 1830, the vague views of Gall and Spurzheim on the origin of nerves and their fibres were cleared by a new light upon the subject, due to the discovery of the nerve cell by Ehrenberg, Valentin and Purkinje. Some ten years later, Hannover proclaimed that all the nerve fibres of the brain arose from nerve cells. In time, Virchow revealed to us the existence of an interstitial framework, a neuroglia, which Cruveilhier had already hinted at. Histologists now set to work on this rich field to work out the connection between nerve cells, nerve fibres and the neuroglia.

The labors of Stilling and Wallach mark an important date. About the commencement of the second half of the century, 1854, Wagner laid down the law that the brain and the cord were made up of an aggregation of cells and primitive fibres. These communicated with each other only by the intermediation of cells. All the phenomena of innervation was due to the union of isolated cells, or groups of cells with other cells, and with central and peripheral fibres.

A little later Deiters gave us the first precise information on the cellular elements of the central nervous system. Gerlach

opposed this cellular doctrine, and advanced that of a fibrillar network enclosing the cells in its minute interstices. The view of Gerlach held sway until the introduction of the neuron theory of Waldeyer. Indeed, there are some who still urge the views of Gerlach. During this same period Waller discovered the law of secondary degeneration, which led him to the important discovery that there were trophic centres for the motor and sensory nerves. This was followed by a knowledge of what constituted parenchymatous and interstitial lesions of the nerves and cord.

In 1853 Türck made the great discovery of a primary degeneration in the lateral tracts. This was the foundation for a scientific study and knowledge of spastic paralysis. A year later he followed up his work on the cord by a careful study of sclerosis of the posterior columns, and followed up work that had already been started by Horn, Wunderlich, Romberg and Todd.

In 1863 Friedreich discovered a hereditary form of posterior tract degeneration. At the same period, Rindfleisch, Leyden and Zenker brought to light that form of sclerosis known as insular. The researches of Charcot and Vulpian distinguished the paralysis due to this insular sclerosis from that known as Parkinson's, or paralysis agitans.

In 1853, Cruveilhier noticed that paralysis with atrophy resulted from disease of the anterior cornua. This was followed by Luy in 1860, who was more positive in his conclusions. A few years later, Clarke, Charcot, Joffroy and Hayem furnished the full proof of this form of atrophic paralysis by pointing out that the disease was due to a degeneration in the cells of the anterior cornua. By a process of reasoning, Heine and Duchenne were led to regard infantile atrophic paralysis as of a similar, though acute, origin. This work was followed up by Clarke, Vulpian, Joffroy, Charcot, Prevost. Bouchard and Charcot studied that double type called amyotrophic lateral sclerosis. The splendid work of Gowers for thirty years on the cord in classifying functions and diseases must receive high praise.

These twenty years of research were leading up to a further series of brilliant advances. Flourens, Broca and Hughlings Jackson were laying the foundation for cerebral localization.

Jackson had discovered the connection between unilateral epilepsy and lesion of the cortex on the opposite side. In 1870, Fritsch and Hitzig made the discovery that the grey matter of the brain cortex could be excited by the electric current. The work of David Ferrier on this great subject stands out as among the most brilliant, as well as the most accurate, of any scientific worker. Later, Wernicke has cleared up some doubtful points, and added new information. The patient labors on localization of Flechsig must be mentioned. He adopted the method of noting the time at which centres and tracts appeared, by studying the nervous system of the fetus and the new-born.

Ten years ago Waldeyer gave to the world the neuron theory. Although this has not been accepted in its entirety, yet it is now the working theory of almost all neuropathologists. By this theory every cell with its fibre is a complete entity. It has no direct connection with any other nerve cell or fibre. The stimulus of one cell reaches another cell through the intervening nerve matter. This theory opens up a new view of the nervous system, and throws a great deal of light on what was formerly dark. The nervous system has now yielded up many of its most profound secrets to scientific research.

A great step forward was taken when it became known that certain poisons acted upon the nerves, causing loss of power and derangement of sensation. To Todd, Jackson, Duchenne, Leyden, Grainger, Stewart, Joffroy, Duménil, much of the credit is due for these valuable advances. About 1880, it became well recognized that there was a form of paralysis with loss of power and wasting of the muscles, together with pain, anesthesia, or numbness, and that these symptoms were not due to disease of the brain or cord. In 1887, Dana, of New York, in *Brain*, showed that the paralysis in the case of chronic arsenical poisoning was due to a neuritis. To Dr. J. Ferguson, of Toronto, is due, however, the credit of proving that paralysis following toxic conditions was a true parenchymatous degeneration, similar to Wallerian secondary degeneration. His paper, read before the Ontario Medical Association, in June, 1887, on "Arsenical Neuritis," marked an important stage in our knowledge of the pathology of the nervous system, as it was the first positive demonstration

of the degenerative changes in neuritis. This work he followed up by equally clear proof on the degenerations in lead and alcoholic neuritis. A.

TRINITY MEN WHO SERVED IN THE WAR.—The following is a list of the graduates and undergraduates of Trinity Medical College who served in the war in South Africa, together with their rank and corps: Lieutenant-Colonel G. Sterling Ryerson, M.D., A.M.S., Red Cross Commissioner; Major Fred. H. Brennan, M.D., A.M.S.; Captain Francis L. Vaux, R.A.M.C.; Lieutenant L. E. Wentworth Irving, M.D., R.C.A.; Civil Surgeon H. S. Roberts, M.D., A.M.S.; Civil Surgeon John Percival Lee, M.D., A.M.S.; Civil Surgeon Ed. S. Worthington, M.D., A.M.S.; Howard G. Barrie, Y.M.C.A. representative; Hospital Sergeant S. J. Farrell, M.D., R.C.D.; Hospital Corporal W. J. Macdonald, R.C.A.; Gunner W. T. Robertson, R.C.A.; Private A. H. Anderson, R.C.R.; Private W. M. Love, R.C.R. Can any College show a longer list?

The Provincial Secretary has granted leave of absence to Dr. C. K. Clarke, Medical Superintendent of Rockwood Asylum for Insane, Kingston, at the request of the Government of British Columbia, to enable him to investigate the working of the Provincial Asylum at New Westminster.

THOMAS M. FENWICK, M.D.

Dr. Fenwick, of Kingston, died at his residence, January 3rd, aged fifty-seven. We learn from the daily papers that about three months ago septicemia resulted from a slight wound produced while paring a corn. A few days before his death amputation of the leg was considered, but thought unadvisable. The deceased was born in Kingston, and graduated M.D. Queen's University in 1864. After graduating he settled in his native town and practised there up to the time of his last illness. He was for many years a member of the teaching staff of Queen's Medical College, and was also Dean of the defunct Women's Medical College of Kingston.

ABSTRACT OF THE PROPOSED BILL FOR THE TREATMENT OF DRUNKARDS.

The main provisions of this Bill are the following:

In all cities of Ontario having a population of 20,000 or over, the Police Commissioners empowered to appoint a probation officer to take the supervision of drunkards placed on probation by the court on suspended sentence. These officers are not to be members of the police force, and they are to act more in the capacity of friendly visitors than as informers. They will also assist the probationer in finding employment when necessary. It will be their duty also to investigate, for the information of the court, the previous record of persons arrested for drunkenness, and to keep record of all such investigations and also of all cases placed on probation. In cases where a fine has been imposed by the court, this fine may be paid in instalments to the probation officer while the person is on probation.

A medical superintendent shall be appointed by the Government to inaugurate and superintend the medical treatment of inebriates and dipsomaniacs, and to assist in establishing for their treatment hospitals and special wards in general hospitals throughout the Province. He shall also make local arrangements for home treatment in suitable cases. The superintendent and probation officers shall co-operate in the work of reformation.

Government grants to promote the medical treatment of dipsomaniacs may be made as follows: Hospitals specially established for the reception and treatment of drunkards, or wards in general hospitals specially equipped for this purpose, shall receive as a bonus 25 per cent. of the cost of building or special equipment, as the case may be; secondly, a special grant of ten cents a day over and above the usual per capita grant to all hospital patients, shall be allowed for cases of chronic dipsomania; and, thirdly, an extra grant of forty cents a day shall be allowed for a period of seven days for cases of acute alcoholism —the medical treatment not to be considered as a charity but as a loan, to be repaid subsequent to treatment and while the person is still on probation.

Able-bodied chronic drunkards, instead of being fined or sent to jail, shall be sent to the Central Prison for not less than six months, and all subsequent sentences shall be cumulative. Able-bodied chronic female drunkards shall be sent to the Mercer Reformatory on cumulative sentences. Chronic drunkards, male or female, not able-bodied, may be provided for in county or city houses of refuge.

Three physicians of standing in the Province may be appointed by the Government as a Committee of Consultation, to co-operate without salary, with the superintendent in inaugurating and carrying out the purposes of the Bill.

Obituary.

RICHARD THORBURN, M.D.

We have to announce, with deep regret, the death of Dr. Richard Thorburn, of Colborne, which occurred on December 15th. Deceased was the youngest son of the late David Thorburn, for some years M.P. for Lincoln in the old Provincial Parliament, and was born in Queenston in 1840. He graduated M.D. in the University of Toronto in 1865. After spending some time in England, he commenced practice in Queenston. In 1876 he removed to Colborne, where he continued in practice up to the time of his last illness.

Early in December he had some obscure cerebral symptoms, which were followed by left hemiplegia. As his condition was considered very serious, he was brought to Toronto for treatment. He sank rapidly, however, and died in ten days after his paralytic attack.

Deceased, who was unmarried, was a brother of Dr. James Thorburn, of Toronto. As a practising physician he was highly successful, and much respected by his patients and friends. He was always an ardent student and a constant reader of both medical and general literature, and always kept himself thoroughly abreast of the times in all matters pertaining to his profession.

The writer had the good fortune to know the deceased intimately, and he has no hesitation in saying that Dr. Dick Thorburn was one of the best physicians, and one of the most estimable men, that this country has produced.

DAVID A. NELLES, M.B.

Dr. David A. Nelles, of Thornhill, died at Grace Hospital, Toronto, after an illness of about five weeks. It is supposed that his death was indirectly due to an accident which occurred about two years ago, when he was injured by a fall.

He was born at Waterford forty-five years ago, educated at the Toronto School of Medicine, and graduated M.B. University of Toronto, 1879. He was very highly respected in Thornhill and a large portion of the County of York, on account of his skill as a physician, and also on account of his many charitable acts. His widow, a daughter of Mr. Berkeley Smith, Bursar of the University of Toronto, and two children, a son and daughter, survive.

EDWARD FARREL.

Dr. Edward Farrel, of Halifax, was one of the ablest and one of the most popular physicians of Canada. The announcement of his death, which occurred on New Year's morning, caused a great shock to many of his friends, especially in distant parts of Canada, who had not heard of his illness. According to the Toronto *Globe*, he had pneumonia and typhoid fever and was ill for many weeks.

He was born in Dartmouth, Nova Scotia, and was in his fifty-eighth year. He received his medical education in New York, where he graduated M.D. from the College of Physicians and Surgeons in 1864. After spending two years as a member of the house staff of Bellevue Hospital, he commenced practice in Halifax in 1866. He soon became one of the leading, if not the most prominent, physician of that city, and retained this proud position until the time of his death. He was a warm Liberal in politics, and was for a short time a member of the local Parliament, and was from 1877 to 1878 a member of the Government. Beyond this, however, he spent but little time in politics and devoted his energies to the practice of his profession. In private life he was one of the most genial and lovable men that we have ever met.

HOFRATH PROFESSOR ALBERT.

Another Viennese light has vanished in the death of Hofrath Prof. Albert, who was born in 1841, in Bohemia, in very poor circumstances. He showed an eager desire to enter medicine from a youth. After completing his gymnasium studies, he came to Vienna and entered for medicine under Skoda, Rokitansky, etc. In 1867 he took his degree of Doctor in Medicine. In 1872 he was promoted to Docent in Surgery. On the death of Dumreicher, in 1881, Albert was raised to the professoriate Chair of Surgery in his stead as collaborator with Billroth. He has written many monographs on most subjects in the science of medicine, and sanitation is not the least of these, having spent the last twenty years of his life in sanitary investigation, being one of the Imperial Board of Councillors.

In his 59th year, he has passed away beloved by all, and respected by thousands. Hundreds of wreaths have come in from foreign societies testifying their appreciation of his worth and expressing sympathy and sorrow in his death. The funeral was representatively attended by every section, rank and creed of the Empire.—*Medical Press and Circular.*

Personals.

Dr. J. V. Hutchison, of Montreal, spent New Years with Dr. Bruce L. Riordan.

Dr. William Britton, of Toronto, spent New Year's at his old home in Brantford.

Dr. R. A. McArthur, of Chicago, spent Christmas with his relatives in Toronto.

Dr. R. C. Boyle, of Vancouver, paid a brief visit to this city during the holiday season.

Dr. Armstrong (Tor. '80), of Northport, Washington Territory, is visiting friends in Toronto.

Dr. A. A. Shepard (Tor. '98), of Sault Ste. Marie, spent his Christmas holidays in Toronto.

Dr. Nattress, of Toronto, spent a week at the Welland, St. Catharines, early in December.

Dr. J. Ephraim Elliot has been elected President of the Toronto Young Men's Liberal Association.

Dr. H. Van Norman (Tor. '79), of Goldfields, Colorado, spent his holiday of two weeks in this city.

Dr. George McLaren (Trin. '99), one of the house staff Toronto General Hospital, is ill with pneumonia.

Dr. W. M. Pugh (Tor. '90), of Kenosha, Wis., was in town last week, visiting his many friends here.

Dr. W. H. B. Aikins, of Toronto, visited New York December 11th, and returned to his home December 21st.

Dr. J. H. Collins (Tor. '89), Chicago, spent Christmas in Toronto, and returned to his home December 26th.

Drs. W. P. Caven and H. J. Hamilton have formed a partnership in practice, which came into force January 1st.

Dr. W. J. Van Senkler (Tor. '91), Vancouver, British Columbia, was married on December 19th, to Miss Leila Mackay, of Toronto.

Drs. Gerald O'Reilly, of Guelph, and E. B. O'Reilly, of Hamilton, spent Christmas with their brother, Dr. Charles O'Reilly, of Toronto.

Dr. W. H. K. Anderson (Tor. '97), resident physician, Toronto General Hospital '97-'98, has been appointed Bacteriologist at the Williams Head Quarantine Station, British Columbia, in succession to Dr. Higgins. He will have special charge of the laboratory work under Dr. Watt, the medical officer of quarantine.

Dr. E. H. Lapp (Trin. '96), of Williamson, N.Y., paid a brief visit to this city during the holiday season.

Dr. C. A. Page (Trin. '99), resident physician, Toronto General Hospital, '99-00, was married to Miss Laura Tudhope, Toronto, December 12th.

Dr. W. F. Maybury (Tor. '97), house surgeon, Toronto General Hospital, '97-'98, Ottawa, came to Toronto, December 21st, and spent the Christmas holidays with relatives here.

Dr. Parfitt, formerly of Toronto, who has been for some time at Saranac, had an attack of influenza about the middle of December, but when last heard from his condition was much improved.

Dr. Theo. Coleman (Tor. '93), who has been practising in Toronto for the last two years, will in the future reside in North Ontario, where he has received a permanent medical appointment.

Prof. Ramsay Wright and Dr. Primrose, of Toronto, started for Baltimore, December 26th, to attend the joint meeting of the American Science Associations. While in Baltimore Prof. Wright was the guest of Prof. Wm. Osler.

Dr. Marshal Dean (Tor. '99), resident physician Toronto General Hospital '99-'00, Fort William, is now recovering from a somewhat severe attack of septicemia. He spent his Christmas holidays at his former home, Brighton, and passed through Toronto on his return to Fort William early in January.

Dr. Higgins, on his way east from British Columbia, visited the bacteriological stations at Minneapolis and Detroit, and then returned to the government experimental station at Outremont, Montreal, where he is now engaged under the supervision of Prof. McEachren in making experiments in regard to tuberculosis in cattle.

The many friends of Dr. Harry B. Anderson, Prof. of Pathology, Trinity Medical College, will be glad to learn that he has almost, if not entirely, recovered from his severe attack of sciatica after an illness of about two weeks in Toronto. He spent three weeks at the Welland, St. Catharines, and returned to Toronto, December 22nd.

We regret to state that Dr. Price-Brown, of Toronto, has not been in the best of health for some weeks. He left Toronto, December 22nd, for Ashville, South Carolina, where he expects to spend the rest of the winter. We sincerely hope, and have every reason to believe that he will return to Toronto in the spring with his health and vigor fully restored.

Correspondence.

ON CIRCUMCISION.

To the Editor of the CANADIAN PRACTITIONER AND REVIEW:

DEAR SIR,—It is one of the most curious things in human history, and it is of course an historical fact, that this singular mutilation should have been ordered and prescribed by Divine authority, for the "Chosen People." Nevertheless, there is a reason, indeed many reasons, for this singular custom. There is, to use a time-honored expression, "much method in this seeming madness."

The most obvious advantage of the removal of the foreskin, is that it promotes local cleanliness. This is of real importance in childhood. In adults the habit of withdrawing the skin and washing the glans has usually been learned, but with children and young boys it is not, as a rule, even thought of. It would indeed be injurious to the morals of a child, if the practice were taught and insisted on. The accumulation of smyrna, however, and its decomposition, is a source of annoyance and of irritation to many boys. Any irritation of the glans penis is liable to produce reflex excitement, precisely of the character which it is most desirable to avoid in young boys. It is very undesirable, and cannot but be prejudicial, to have this part of his person kept in a state of irritation. Anything which draws attention to it is injurious to any young lad.

In middle life, seborrhea, balanitis and herpes are common, and are often very troublesome. The majority of both middle-aged and elderly people would be better off and safer if they had been circumcised in infancy.

The real argument in favor of the general practice of circumcision is that it would greatly tend to reduce the prevalence of syphilis. It would be difficult to contrive an appendage more likely to facilitate the implantation of the syphilistic virus than the pressure. Folds of delicate mucous membrane are (by its means) kept constantly in the most suitable condition for the retention and absorption of any infective virus. The objections to any system of legal inspection and examination are notorious; but these very reasonable and right objections are not at all applicable to circumcision. Effected in early infancy, it might easily be made the means of preventing the prevalence of a loathsome and misery-producing disease. The gain would be without any drawback.

It ought not to be forgotten that in the case of a contagious disease of this kind, every case may become the focus for further spreading, and that the prevention of one case may mean the prevention of many.

These are, no doubt, in a sense "home truths." They are at the same time both interesting and important. R. D.

MONTREAL, January 1st, 1901.

Book Reviews.

A Text Book of Histology, including Microscopic Technic. By Drs. A. A. Böhm and Davidoff, of Munich. Edited by G. Carl Huber, M.D., of Michigan University, translated by H. H. Cushing, M.D., of Jefferson Medical College. With thirty-five illustrations. Philadelphia: W. B. Saunders & Company. Toronto: J. A. Carveth & Co. Price, $3.50 net.

This is an octave volume of 500 pp., gotten up in Messrs. Saunders' excellent style. Paper, binding, type and illustrations leave nothing to be desired. Turning to the matter of the book, there is much to give pleasure to the reader. To those working on histology it will prove a valuable help. The descriptions for the practical work of preparing specimens and making slides are specially full. There is much in the book also to interest the general practitioner. The lucid account of the structure of the several organs throws much light on the process of disease and the making of diagnoses.

Cancer of the Stomach, a Clinical Study. By Drs. Osler and McCrae, of the Johns Hopkins Hospital, Baltimore. With illustrations. Philadelphia: P. Blakiston's Son & Co. . 1900.

Any monograph from the pen of Dr. Osler will command attention. He has given to the profession a number of other valuable monographs. The present work is valuable in so far as it brings our knowledge up to date in a readable form and of reasonable bulk. The diagnostic and pathological study is very good. There is nothing of special note in the treatment. Such could not be expected. The advice on diet, drugs and surgical interference is all that could be desired. We very highly recommend the book; for, though it may not enable the reader to cure his cases, it will bring to him an ease of mind, from a full knowledge of the disease, that is always a comfort to a physician.

Atlas and Epitome of Diseases Caused by Accidents. By Dr. Ed. Golebiewski, of Berlin. Authorized translation from the German, with editorial notes and additions by Pearce Bailey, M.D., Consulting Neurologist to St. Luke's Hospital, Yonkers; Assistant in Neurology, Columbia University; author of "Accident and Injury: Their relation to Diseases of the Nervous System." 40 colored plates and illustrations in black. Price, $4.00. Philadelphia: W. B. Saunders & Co.; Canadian Agents: J. A. Carveth & Co., Toronto, Ont.

One would almost be surprised at the amount of good material that has escaped the attention of medical writers, when we pick up a book like the above and see the large number of omissions from standard works. The sequels to accidents and injuries

are so infrequently referred to, one would almost infer that they did not exist. But we know differently, and those of us who have had experience with large numbers of emergency accidents know that it is the serious results that bother us most. In the work before us the author has succeeded admirably in treating his subjects, with an amount of brevity that is astonishing for the amount of information that is contained in the description. The range of the work is over the whole body, and is contained in 550 pages, with hundreds of illustrations. The illustrations of this atlas, as in all of the series, are remarkable for their resemblance to the condition under discussion. Most colored illustrations in medical works, as a rule, convey an idea that is as far as possible from the fact. However, in this particular work, one can get almost as much information from studying the illustration as he could from examining the subject. In illustrating injuries to the joints and bones, very beautiful X-ray reproductions are used, and the importance of the X-ray in diagnosis is clearly made out. We think this is one of the few volumes appearing in the year, that should be in the hands of every practitioner who deals with emergency cases. It is, in our opinion, a book that will be of great use to surgeons who are called upon to advise in settlement of suits for damages arising from accidental injury. It will aid him largely in eliminating the personal equation. The volume is uniform with the series of atlases, and the illustrations, type work, paper, etc., are all that could possibly be wished for.

The American Illustrated Dictionary. A new and complete Dictionary of the terms used in medicine, surgery, dentistry, pharmacy, chemistry and the kindred branches, with their pronunciation, derivation and definition. By W. A. NEWMAN DORLAND, A.M., M.D. Philadelphia and London: W. B. Saunders & Co., 1900; Canadian Agents: J. A. Carveth & Co., Toronto, Ont. Price, $4.50 plain; $5.00 index.

This is a volume of convenient size. An up-to-date dictionary sufficiently full for the varied requirements of all classes of medical men. It is not claimed to be an encyclopedia, but a concise and convenient word book, aimed to furnish full definitions of the terms of medicine and kindred branches, and such collateral information as medical men generally would be likely to look for. Besides the ordinary dictionary matter, it includes a large amount of information arranged in tabular form. The important features of pronunciation and derivation have received full consideration. The volume is of attractive appearance and convenient size with clear typography. The numerous illustrations and 24 exceptionally good colored plates render this work one of pronounced value.

Modern Medicine. By DRS. SALINGER AND KALTEYER, of Philadelphia. Philadelphia and London: W. B. Saunders & Co., 1900; Agents for Canada: Carveth & Co., Toronto.

This work is by two physicians of Philadelphia, teachers and active members of hospital staffs. They have evidently had abundant material to work upon, and have done good work. The book cannot be called a reference hand-book, many of the subjects being too shortly discussed to be of real value. The book is very well gotten up, print of plates being really very fine. The sections dealing with sputum, urine, blood and bacilli generally being profusely and beautifully illustrated. Treatment, we think, is somewhat scant, as seems to be the fashion with the latest works on medicine, few hints being thrown out to the reader for dealing with possible complications. The price is moderate, $4.00, cloth bound. It is worth the money, if only for the sections noted above. A. B.

Modern Surgery—General and Operative. By JOHN CHALMERS DACOSTA, M.D., Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia; Surgeon to the Philadelphia Hospital, and to St. Joseph's Hospital, Philadelphia. With 493 Illustrations. Third edition, revised and enlarged. Philadelphia and London: W. B. Saunders & Co.; Canadian Agents, J. A. Carveth & Co., Toronto, Ont.

We have before us the third revised edition of DaCosta's "Modern Surgery." This book has passed through three editions in the last six years, and each edition has been a considerable improvement on its predecessor. We can confidently recommend the work to the profession; it is up-to-date in most of the different branches of surgery. A very interesting and instructive chapter on Anesthesia and Anesthetics will well repay the reader for a careful perusal. The chapter on X-Rays is, in our opinion, not quite so complete as it should be at this day, at the same time the general remarks are good, and the illustrations capital. The whole work is illustrated by very elaborate drawings, and, differing from a great many other works, they have the advantage of not being colored. We think, however, an improvement could be made in one particular branch of the work, and that is the Treatment of Fractures. The subject of fractures has undergone considerable change during the past four or five years, and we do not note in this edition the same advance that there is in other branches. The subject of fractures and dislocations is so apt to be treated in a routine method, that advances in this particular branch of surgery are not usually carefully enough gone into in each succeeding edition. We are sorry for that, because the present-day treatment is really an improvement of that of a few years

ago, and we had hoped to see in this work more advanced ideas. One particular fracture that strikes us in the matter is the Fracture of the Patella. The only operative interference that has figured in these cases is that of sub-cutaneous wiring. In our opinion, if an operation is decided upon, the safest operation is the open method, and we believe that a greater proportion of cases of fracture are more advantageously treated by the open method than any other. Sub-cutaneous operations in any part of the body are far more dangerous than open methods to-day, where aseptic conditions should be the *sina qua non* of success. The typography, binding and paper of this work are all that could be desired for a first-class volume.

Manual of the Diseases of the Eye. By CHARLES H. MAY, M.D., Chief of Clinic in Ophthalmology, etc., Columbia University, New York. New York: Wm. Wood & Co.

It is a matter of some difficulty to write a book upon a special subject, and make it suitable for the student and general practitioner. This is what the author of the book before us has endeavored to do, and, we must say, with a good measure of success. He has, in this small volume, covered almost the whole ground touched upon in larger works. The author has adopted the plan used so admirably by Fuchs—that of giving the anatomy and physiology of each part before speaking of the diseases or injuries of that part. This is especially useful for the medical man who is not daily treating the eye, enabling him to find what he wishes to look up very readily. In its general plan the work resembles the standard books. Commencing with directions for the proper examination of the eye, it proceeds to describe the diseases of the different parts, beginning with the eyelids, and terminating with the retina and optic nerve. The treatment, both operative and non-operative, for the various diseases and injuries is given with clearness. Taking up optics, general principles are given, and those principles are applied in speaking of the correction of errors of refraction. The last chapter is a good—but concise—*résume* of ocular therapeutics. The book is freely illustrated, twelve of the figures being colored, to show both the normal condition of the fundus and some of its abnormal states. The colored illustrations will be exceedingly helpful to any one who can use the ophthalmoscope. This book was not written for the man who purposes taking up ophthalmology as a specialty, but to those classes for whom it was written it may be commended as an exceedingly useful volume.

Selections.

The Treatment of Whooping-cough with Antitussin.

Heim (*Berliner Klinische Wochenschrift*) regards antitussin as the most valuable therapeutic agent thus far brought forward for the treatment of whooping-cough. It is an ointment composed of five parts of difluordiphenyle, ten parts of vaseline, and eighty-five parts of chemically pure lanolin. Heim used this remedy in sixteen, for the most part very severe, cases of pertussis, and always with gratifying results. In nine cases of unusual severity, the children were in a convulsive state when the treatment was initiated. These were infants from three to eighteen months of age. In all cases after rubbing the throat, chest, and back, there occurred a prompt and often an astonishing improvement in the patient's condition. The remedy diminished the spasms and increased the secretions, and after two days of treatment there was decided decrease in the coughing attacks. Complete recovery took place sometimes in a few days, and at the longest within two weeks. He observed no ill effects from its use. He further recommends the use of antitussin in acute catarrhal affections of the larynx and pharynx.—*Medical Age.*

The Physical Effects of Overdoses of Cocaine.

The commonest symptom following a moderate overdose of cocaine is a feeling of cardiac anxiety or depression, but with much larger doses, say from one to twelve grains, there is marked cerebral excitement, with loss of memory for current events and precipitancy of idealization, the thoughts passing through the mind "helter skelter." In some cases these large doses give rise to maniacal delirium under the empire whereof the patient may commit acts of violence of which he has no recollection on recovery. The special senses are not affected, but owing to the disturbance of the cerebral function the impressions conveyed from them to the brain may cause hallucinations. The heart beat becomes rapid and small, and the rhythm is more or less impaired. Associated with these symptoms there is muscular tremor and extreme restlessness. The effects of cocaine at any rate when administered hypodermically, seem to depend not only upon the actual amount injected, but also in no small degree upon the strength of the solution employed, as shown by the fact that an animal which supports an injection of half a grain without inconvenience, when administered in dilute solution, suffers severely if even a third of a grain be injected in concentrated solution.—*Medical Press and Circular.*

Sugar as an Oxytocic.

Madlener (*Munch. Med. Woch.*), referring to Payer's paper upon "The Influence of Sugar upon Metabolism in Pregnancy and During Labor," in which Payer records decided oxytocic effects at different stages of parturition, confirms the efficiency of sugar in cases requiring increased muscular effort, and relates his own experiments while mountain-climbing. Madlener ascribes this particular influence of sugar to its rapid absorption into the blood. No food is taken up so readily; none imparts to the system such prompt and effective stimulation as sugar.

Madlener had occasion to experiment in six cases of uterine atony, to wit, three times in primary and three times in secondary cases of deficient uterine contractility. In five cases out of six the oxytocic influence was noticeable within from one-half to one hour after exhibition. Five cases terminated by spontaneous birth. He used thirty grammes—one ounce—of sugar in a half-pint of water, and if necessary repeated the dose once. Two patients took more than prescribed (three and five ounces respectively) without untoward effects, nausea, or vomiting. In three cases out of the six Madlener noticed a decrease in the pains coupled with increased uterine contractility, as previously set forth by Payer. He strongly urges the practitioner to take advantage of this safe, inexpensive, and effective means of furthering labor.—*Medical Age.*

The Rationale of the Treatment of Anemia by Iron and Arsenic.

Dr. F. Aperti has published a valuable paper devoted to the above subject in the *Centralblatt fur Innere Medicin.* From careful observations carried out for several years in the clinic of Professor Riva, it had been found that the use of injections of iron and of arsenic had different results in the primary anemias. Thus it was found that while iron increased the amount of hemoglobin in the red corpuscles, arsenic increased only the number of red corpuscles. The experimental work referred to in the paper was undertaken to determine the conditions of the blood (both as regards corpuscles and hemoglobin) after a small amount of blood had been abstracted, and also when iron was given with the food; and also to ascertain the influence of arsenic and iron upon the regeneration of the blood in animals from whom blood had been repeatedly withdrawn and whose food and nourishment were free from iron. From these experiments it appeared that two things were necessary for a complete regeneration of the blood—viz., a restitution of the protoplasm of the red corpuscles and a sufficiency of iron for the production of hemoglobin. When no iron was given in

the food, the iron necessary for the formation of hemoglobin had to be obtained from the liver and from other organs of the body where hemoglobin and iron were deposited. If iron was withheld from the food too long the blood, and finally the body tissues, lost their hemoglobin and the animal died apparently from profound anemia. Dr. Aperti found from careful chemical analysis that when the period of profound anemia and of grave exhaustion had been reached the iron in the liver was greatly reduced, so that the amount in this organ fell as that contained in the spleen and muscles, while the amounts in all three organs were considerably below those in the organs of healthy animals. In animals rendered slightly anemic by bleeding or by withdrawing all iron from the food the administration of arsenic caused a very considerable increase in the number of red corpuscles, but none in the amount of hemoglobin. Injections of iron now caused a very striking increase in the hemoglobin, the amount almost doubling itself in seven days, rising in this time from fifty to ninety-five per cent. Repeated experiments gave the results and confirmed the belief that the two substances act differently, and that while the arsenic increases the number of red corpuscles the iron increases the total quantity of hemoglobin. A rational basis is thus afforded for the therapeutic use of these drugs.—*The Lancet.*

Arterial Sclerosis.

Local sclerosis are but the beginning of general sclerosis, always to be found by those who look for it. The chief characteristics of syphilitic sclerosis are: (1) It is nodular and not diffuse. (2) It has a tendency to invade portions only of a vessel wall. (3) Its onset is usually chronic. (4) The points of attack in order of frequency are: (*a*) Cerebral arteries; (*b*) aorta, especially ascending portion of arch; (*c*) arteries of heart; (*d*) arteries of pericardium. (5) It has a tendency to obliterate vessels. (6) It has a tendency to form aneurisms. (7) In analogy with tuberculosis it has a tendency to obliterate arteries, to form aneurisms, and to become localized.—*Dr. C. A. Penrose, Johns Hopkins Hospital Bulletin.*

Lumbar Cord Cocainization.

Medullary narcosis seems to be winning its way to popularity with the rapidity with which a new idol gains in favor. It is to be hoped the dangers of the method will not be ignored. There has been at least one death already reported from cocainization of the lumbar cord. Bier reports a list of unpleasant symptoms that may go on for eight days after the cocainization. —*The Medical Age.*

Rectal Alimentation.

Edsall points out the insufficiency of rectal alimentation in keeping up the nutrition of the body, and illustrates it with a carefully observed case. He does not wish to say that it is of little value, for it is sometimes our only resource, but it is only an unsatisfactory makeshift at best by which we can temporarily reduce tissue loss and tide a patient over a period during which the stomach is becoming equal to reception of food, or who is being prepared for operation for removal of mechanical difficulties interfering in taking food by the mouth.—*Jour. A. M. A.*

Alcohol in the Acute Stage of Pneumonia.

It is now accepted that alcohol is a food as well as a stimulant. As a food, it may be employed to replace in part, or to supplement, the food already mentioned. I believe it can be resorted to with advantage much earlier than it is usually administered. With the passing of the inflammatory theory of pneumonia we need not be deterred from its use by the fear of aggravating the local trouble. On the contrary, its distinctly anti-germic property aids in inhibiting the local bacterial activity. As to its antidotal action upon the poison already in the blood, there is much favorable clinical evidence. Many instances are on record in which patients almost *in extremis* have been rescued by the use of twenty or thirty ounces of brandy or whiskey in twenty-four hours. Analogy also points in the same direction The most efficient treatment yet employed for the bite of venomous reptiles consists in the administration of enormous doses of alcohol, and the same is true of poisoning with carbolic acid.

Alcohol may be employed tentatively at any stage in pneumonia. Its action will be shown to be beneficial if twenty minutes after the dose is taken the pulse becomes less frequent and of greater volume, and the respiration slower and deeper. The duration of the betterment is the key to the amount and the frequency of the dosage. In the case of drunkards we must remember that alcoholic *stimulation* begins only when the quantity given exceeds the habitual allowance in health. Much of the frightful mortality of pneumonia in heavy drinkers is doubtless due to the fact that the depressing effect of the disease too often coincides with the prostration caused by the withdrawal of a large part of the alcohol that has become a necessity of their existence. Our first duty in the case of an "alcoholic" with pneumonia is to see that he gets his full daily measure of spirits. The amount of *stimulation* to be employed is an after consideration.—*Andrew H. Smith, in International Medical Magazine.*