

CANADIAN OUT-DOOR LIFE.

A MAGAZINE DEVOTED TO THE GOSPEL OF OUT-DOOR LIFE
IN THE TREATMENT OF TUBERCULOSIS, AND THE VALUE
OF FRESH AIR AND HYGIENIC LIVING FOR EVERYONE

VOL. I

TORONTO, CAN., MARCH, 1907.

NO. 5

The Toronto Hospital For Advanced and Far-advanced cases of Consumption.

By SIR W. H. BROADBENT, M.D., F.R.S., Physician-in-ordinary to H.M. the King.

British Medical Journal, Feb. 9th, 1907.

A SMALL hospital to which I was taken by the Treasurer, Mr. Herbert Hammond, in the course of the meeting at Toronto, is worthy of special notice. It is the Hospital for Advanced and Far-advanced Cases of Consumption.

I do not know what the death-rate from phthisis is in Canada generally, or in the individual provinces, but it is sufficiently large to have called for an Association for the Prevention of Consumption, which is doing active work, chiefly of an educational character, but also in promoting the erection of sanatoriums.

Tuberculosis in its various forms is often spoken of as a disease of poverty. There is no doubt some relation between poverty and consumption in Canada—poverty relative to the great expense of house accommodation, to the high price of clothing and other necessaries, particularly, perhaps, of coal as a defence against the long, cold winter, even of food which is produced so abundantly. Absolute poverty is almost unknown, except as a result of alcoholism and vice, and there seems to be ample provision against the impoverishing effects of sickness and misfortune. Destitution cannot, therefore, be

the main cause of consumption in Canada, or hold the same prominence in its causation as in England and Europe generally.

A factor of very great importance is the method of heating dwelling-houses, which seems to be almost universally employed, at any rate in the towns. The abundance of wood would lead one to look for the large open fireplaces seen in old English houses; coal, too, is found in enormous quantity, but no doubt the distances, the want of means of communication, and the cost of labour make fuel expensive. The defence against cold, therefore, is to shut up houses and keep out the cold air, and to maintain a rather high temperature by means of radiators. Ventilation is reduced to a minimum; there is no compulsory influx of air by doors and windows to replace that which goes up the



ADMINISTRATION BUILDING, TORONTO FREE HOSPITAL FOR CONSUMPTIVES

chimney of an open fireplace—no automatic renewal of air, which is thus rebreathed over and over again, charged with moisture and impurities from the lungs and skin, so that the dwellings are, if not actually culture media for the tubercle bacillus, perfectly adapted to protect it from adverse influences and promote its virulence. Corridors and passages are common, even in the best hotels, into which daylight never penetrates, and in which electric lights are necessary day and night.

Of course, conditions like these, which favour the dissemination of the tubercle bacilli, ought to be banished, but to revolutionize the domestic architecture and arrangements, as would be necessary, appears to be impracticable. There is about as much chance of this in Canada as of the extinction of poverty and the proper housing of the poor in this country.

This consideration gives to measures for preventing the dissemination of the tubercle bacilli primary and predominant importance, and it is the special merit of this little hospital that its purpose is to meet this requirement.

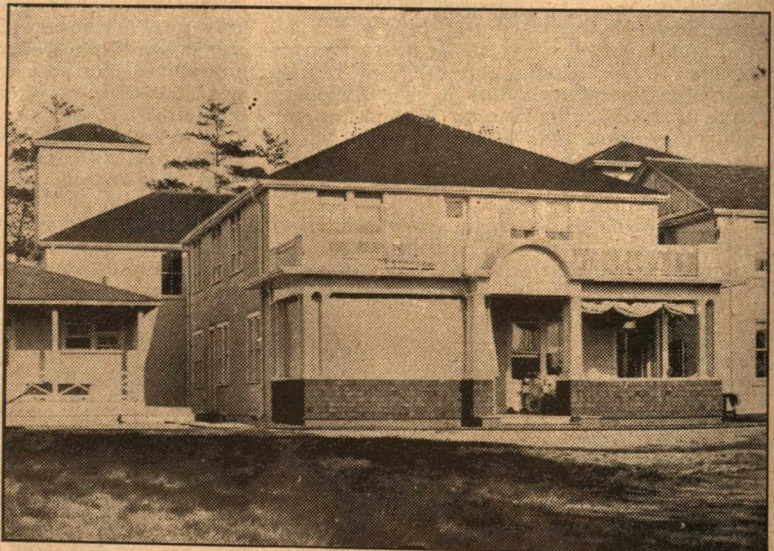
In dealing with consumption there are two distinct objects to be kept in view—the relief and cure of those already affected and the protection of the community generally from the disease.

In order that any sufficient degree of success may attend the first of these objects, the cases must be taken in hand at an early stage. It is on their behalf that sanatoriums have been erected for the open-air treatment, and it has almost come to be thought that these sanatoriums are the chief means to be relied upon for the suppression of consumption. They are, indeed, of very great importance in the combat against tuberculosis, since every case arrested ceases to be a focus of contagion, but the realization of the value and efficiency of the open-air treatment was an accidental coincidence with the discovery of the tubercle bacillus and the general recognition of the part it plays in the spread of the disease.

It is in advanced and far-advanced cases that the tuberculous microbes are produced in dangerous amount; the copious expectoration teems with them. For the purpose of

prevention the most important measure is the destruction of the sputum. Could this be effected completely the disease would be intercepted at its source, and in proportion as the expectoration is destroyed its spread is hindered and the community is protected from its ravages. If the expectoration is to be at all dealt with, the sufferers must be under efficient supervision and control. In some instances such control might be exercised at home, but in an enormous majority of the cases removal from unfavourable surroundings and segregation in special hospitals will be imperative.

Of the two objects, the treatment of early cases and the isolation of advanced cases, by far the most important in the interests of the public is the latter. The provision for these two objects again falls on different shoulders. Sanatoriums for the treatment of presumably curable cases are a legitimate object for charitable effort. Hospitals for isolation purposes ought to be provided by the health authorities. It is as much the duty of the bodies charged with the responsibility of guarding the public health to prevent the dissemination of tubercle bacilli



NEW BUILDING OF TORONTO FREE HOSPITAL FOR CONSUMPTIVES

in the air as to prevent the contamination of drinking water by typhoid bacilli.

The hospital for advanced and far-advanced consumption in Toronto is the first which, so far as I am aware, has been erected purely and simply with a view to prevention.* I do not know who is to be credited with the idea, whether lay or medical, but I regard it as a fine instance of Canadian common sense and foresight. Its realization is due to Mr.

*I fear I am doing an injustice to the Royal Victoria Hospital, Edinburgh, where, under the inspiration of Dr. Phillip, a pioneer in the campaign against tuberculosis, 50 beds are set apart for advanced cases.

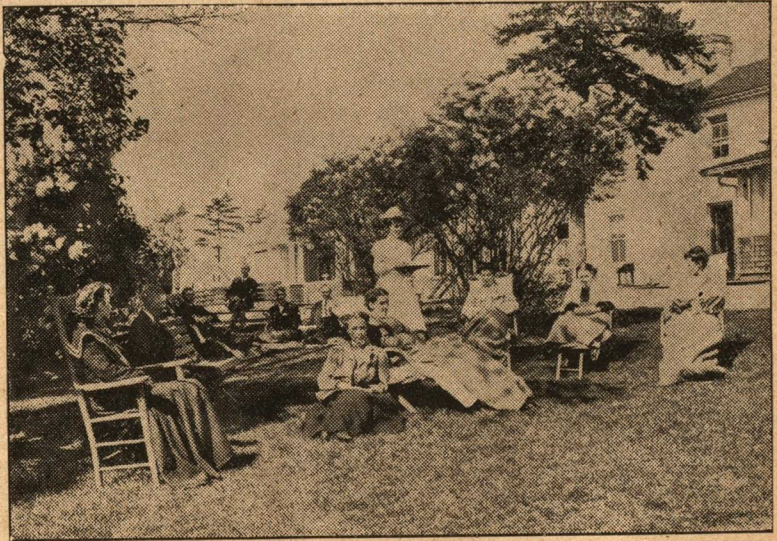
Gage, Chairman of the Board of Management. It is all the more noteworthy as an example from the fact that the duty of municipal and State support has been insisted on. Out of the eight dollars a week which each patient costs, five are provided by the State and municipality.

A few words now about the hospital itself. It is about seven miles out of Toronto, stands in about forty acres of ground, and is pleasantly situated near the edge of a small ravine. A pre-existing house has been converted into an administrative block and residence for the staff. Small wards have been added, and the accommodation thus furnished is supplemented by a number of old tramway cars grouped around the building, each of which makes a comfortable room with a bed and a few simple articles of furniture. In one corner is a small stove for winter weather. The number of beds is 66, and, thanks to the simplicity of the arrangements, the total cost up to the present does not greatly exceed 40,000 dollars, very little over £100 a bed, the purchase of the land included. It is contemplated to build small wards for paying patients far advanced in consumption. The hospital is conducted on open-air principles, and is bright and cheerful. Three women slept on a balcony all through last winter. A detail of some interest and importance is that the beds are not close up to the walls. If dust accumulates anywhere in a hospital ward or ordinary bedroom, it is under the head of the bed, and a clear space here easily accessible to the moist duster is an excellent idea. The spittoons are small, square, flat tin boxes with a handle, within which is a close-fitting box of stiff moisture-proof paper. They are all numbered, the paper and tin corresponding. The inner paper box is removed at regular intervals, and a note is taken of the amount and character of the contents, perhaps a specimen of the sputum withdrawn for examination, after which the paper box and its contents are burnt. The examination of the expectoration is facilitated and there is no need for an elaborate apparatus for disinfecting the spittoons. The

handkerchiefs are made of a soft thin cotton fabric called, I think, butter cloth, and are cut off from the piece in the institution. They cost less than the washing of an ordinary handkerchief, and are burnt. The administration and organization are evidently most efficient.

Spray and pulverized liquids and powders for the various parts of the air passages are administered by means of compressed air, operated, as the Transatlantic term is, by a minute electric motor situated in the corner of the room. The patients sit in a row on a form, each holding his own particular phial of inhalant into which the compressed air is conveyed.

Another interesting detail in the examination and operating room is that a disc of glass is suspended between the physician and patient during throat examinations. It prevents the disagreeable and dangerous projection of particles of expectoration into the examiner's face, which often gives rise



SUMMER VIEW OF TORONTO FREE HOSPITAL FOR CONSUMPTIVES.

"The site is an excellent one for such an institution."—Dr. R. W. Bruce-Smith, Government Inspector.

to a suspension of the examination or operation, and it does not interfere with manipulations or with a good view of the mirror.

The value of a hospital like this is not measured by statistical results, but surprising improvement often takes place in the worst cases, and many patients have so far recovered as to be fit to return to their homes without danger to their families.

Workhouse infirmaries have to a certain extent taken the place of such hospitals, and exercise their functions of segregating and isolating advanced cases, but in a casual manner only. The protection of the public would be far more efficient were the purpose of this isolation fully recognized.

THE WHITE PLAGUE IN THE LOCAL LEGISLATURE

THE combat against consumption provoked an interesting educational discussion, it nothing more, in the local Legislature on March 4, when Mr. J. P. Downey, member for South Wellington moved the second reading of his bill to prevent the spread of tuberculosis. The bill provided for the creation of county Boards of Health, whose duty, with the aid of the Provincial Board of Health, it shall be to take measures to keep in touch with persons suffering from consumption, provide them and their families with literature bearing on the disease and methods of combating it; to remove patients when necessary to sanatoria; to take steps to build and maintain such institutions, and to make notification of the disease compulsory.

Speaking to the measure, Mr. Downey regretted the general apathy on the question. He quoted figures as to the death rate from the disease in the new and the old world. Dr. Wm. Osler has given it as his opinion that in the United States to-day 1,250,000 people were afflicted with the disease. The loss on this and other continents in life and money from this disease were truly appalling. But these losses in the aggregate were often lost sight of in the deaths of the great geniuses of the world who fell victims to consumption. He gave a number of names of such men and women, and proceeding, devoted some time to an outline of the manner in which the Germans were fighting the disease. Upon this in part his own bill was based, particularly in regard to the sending out of literature for the guidance of tuberculosis sufferers and the establishment of local sanatoria.

Norway, however, stood as the model for all countries in respect to anti-tuberculosis legislation. In that case compulsory notification was provided for by law. A great deal had been done in the United States in the encouragement of establishing State sanatoria, but so far little had been done in Canada or in this Province to prevent the spread of tuberculosis. The Legislature of Ontario had taken one important step by the passing of an act in 1900, making a grant of

\$4,000 toward the establishment of municipal institutions to fight the disease. It was a matter of regret that only one municipality, Hamilton, had taken advantage of that act. In alluding to the clauses demanding compulsory notification, Mr. Downey declared that everything else that was done by way of legislation would fail unless notification was made compulsory, so that the authorities would be at once able to take the steps the case and the nature of the surroundings warranted. Mr. Downey did not offer the bill as a final solution of a question which was pressing itself upon this and every deliberative body in the world to-day.

Mr. A. G. McKay thought the weakness of the bill was that it was too local and unnecessarily expensive. In view of the nature and importance of the work the boards should be as permanent as possible, and the work should be centralized more under Government control. The disease was not so prevalent in Ontario that it might not be dealt with in three or four or five Provincial institutions established on similar lines to the new normal schools. There was considerable to be said against county boards being able to compel County Councils to build sanatoria, and the creation of such power would likely result in friction.

"It should be made a Government measure, and the whole matter dealt with from a Provincial standpoint," concluded Mr. McKay.

Hon. Mr. Hanna referred to the efforts of five central counties to secure five units of the Provincial grant, in all \$20,000 to build a sanitarium. The request appeared to be a reasonable proposition, but the idea was abandoned that one institution could serve five counties. It became a question whether a county institution was not dealing with too large an area. The patients required lots of fresh air, good food and a knowledge of hygienic conditions, and it did not require a very large investment. After all, the officers and machinery were the most important. The Board of Health of the Province had given the matter their attention. In fact, if he was not mistaken, they had already drafted something that could be readily put

in the form of a bill. The Government was anxious that this matter should be taken, as well as to suggest a reorganization of the medical boards of health. He desired that Mr. Downey should withdraw his bill for this session, with the understanding that the whole matter be referred to the Provincial Board of Health, who will take it up actually with a view to informing the Government as to what should be done.

Mr. Downey agreed to the suggestion and formally withdrew his bill.

Mr. Downey in making the statement, that only one municipality had taken advantage of the Sanatoria Act of 1900, overlooked the important and successful work that has been carried out in Muskoka by the National Sanitarium Association within a period of ten years. Over twenty-three hundred pat-

ients have been treated, with gratifying results, in these two Muskoka homes.

Again there is the work of the Toronto Free Hospital for Consumptives directed by a separate board of trustees. Fifty thousand dollars has already been expended in equipment, including the \$4,000 grant from the Government, provided for under the statute referred to by Mr. Downey. And at the present time further buildings totalling \$30,000 are in course of construction. In this institution, opened to receive patients in September 1904, over four hundred in the advanced and far advanced stages of Consumption have received treatment.

Patients in the Muskoka institutions are admitted from all parts of the Province, and the matter of ability or inability to pay is not a barrier to admission.

Dinner-Table Dissipation

PROBABLY comparatively few of those who are addicted to harmful and vicious dissipation at the dinner-table are really aware of the fact that they might properly be charged with gluttony. Gluttony is eating for the pleasure of eating, without regard to the taking of food to satisfy the necessities of the body or to preserve life. The question with the vast multitude of people in civilized lands is not, "Do I need to eat?" but, "Can I eat?" It is not, "Does my blood need nutrient material to nourish it?" "Do my muscles need material with which to support the demands made upon them for energy?" "Do my nerves need recreation, or a supply of material from

which the nerve cells may be provided with energy?" "Does this ever-consuming fire within my body need fuel to maintain animal heat?" The more common question is, "Can I obtain pleasure from the taking of food?"

Nature usually employs a sufficient safeguard against repletion by taking away the appetite when an excessive amount of food has been ingested. Man, however contrives to circumvent nature, and refuses to take the hint that no more food is needed, by creating an artificial appetite by the use of mustard, pepper, pepper-sauce, and various other condiments, and by stimulating the palate by means of highly seasoned dishes and palatable-tickling combinations in great variety.

A SENTIMENT

There shall never be one lost good! What was, shall live as before;
All we have willed or hoped or dreamed of good, shall exist;

Not its semblance, but itself; no beauty, nor good, nor power,
Whose voice has gone forth, but each survives for the melodist,

When eternity affirms the conceptions of an hour.
The high that proved too high, the heroic for earth too hard,

The passion that left the ground to lose itself in the sky,
Are music sent up to God by the lover and the bard;

Enough that He heard it once; we shall hear it by and by.

Browning

An Insight

THE engineer had just completed the sign. The parson had hung it up. And there now it was in gaudy red letters over the ranch-house door. They lived on a spur of Cheyenne mountain—they and the Sick Man and the Kid—and they looked across the Colorado desert a hundred uninterrupted miles, as they sat and “took the cure.” They were brothers of the order of T. B., and the sign they had just put up blazed out to all the world the deepest feeling of their souls. It read, “No one can truthfully say any good of tuberculosis.”

The midday sun beat down upon the plains. Seventy-five miles away a huge ledge of white sandstone, one hundred or more feet high, made a line like a board fence painted white. An insect whirred up in the stillness with the noise of a rattlesnake. A jay bird jeered from the top of a near-by pine tree. The four men lay dozing in their chairs. One of them had a dream: he had a vision of the burden of the world.

Across a vast, wide plain a mighty army toiled: the strangest army man had ever seen since that great host marched round the eastern desert seeking for the Promised Land. There were women no less than men; little children and old folks bent with years; stalwart youths right ready for all venture and all strife, and they whose faces bore the horrid marks of wasted powers and of challenges ignored. As they went some were far ahead and blazed the course that should be followed; some prepared the road and built the bridges, cleft the rocks and filled the gaps; some scoured all the land and sought for food, and warned of danger or of storm; while others sang, playing on musical instruments and cheered the march along; and others still bore heavy burdens on their backs, which seemed to be the baggage of the host.

And as the sleeper watched, these last claimed his attention. They held a place unique among the rest. For as he looked he saw that they it were who set the pace for that strange march. Progress could not be swifter than their feet. By reason of the loads they bore, the others walked all free and unencumbered, and yet these could not go more fast than they, than they who staggered and oft stumbled in their steps—for heavy were the weights upon their backs.

As they who carry its great load advance—not they who blaze its path or make its road or cheer its way along—the human race advances, quick or slow.

The sleeper saw, and as he saw he sought to know the nature of these loads, the contents of these packs. He went more close, and on each load he found a word was writ. On one was written “Injustice,” on another “Bad Inheritance,” on another “Vicarious Sufferings,” on another “Grief,” on another “Disease.”

The dreamer slept and when he woke he thought upon his dream and what its meaning was, if meaning aught it had. And as he pondered it, he heard; he heard from out the old rebellion and long seeking of his soul for explanation of that fate which had been his—his broken hopes and good ambitions killed, his stricken life, his manhood sheathed in idleness and weakness—a voice:

“You sought to be a leader of the host; you chose to be a maker of the road; you would have been a helper or a singer in the throng. It could not be. Your task was nobler yet. You are a burden bearer of mankind. There is the burden of the race, the burden of its folly and its wrong, its ignorance, its stupid prejudice, its sin, its wilful violation of the law, its innocent transgression of the rule. Some one must carry that—must carry that great sadness and great pain, that weakness, that ineptitude, that care—must carry it that others should go free, that mankind should go forward and go up.”

He heard, and as he heard he reached up and took the new-made sign from out its place and brake it in small pieces. His face showed a great content.

Oh, fellow-bearers of the load we did not choose, the load we fain would have some other carry if we could, remember this—the burden bearers help the world along.

I know not how it is. I know not all the law. I am only sure of this—the fight that each man fights behind his chamber door for courage and for patience and for faith he fights not for himself alone, he fights for all mankind; he fights as one who is a helper of his kind, as a blood brother of that One, Who in little Galilee, obscure, almost alone, was wounded for our transgressions and bruised for our iniquities, and Who upon the cross became the Burden Bearer of the human race.—*Journal of the Out-Door Life.*

The Value of Apples as Food

THE apple is one of the most wholesome and valuable of foods for the reason that it keeps so well in temperate climates and presents such a variety of flavors, suiting itself to man's needs by ripening at different seasons and supplying a considerable amount of nourishment in the most easily digestible form. The nutritive value of the apple is about fourteen per cent. Its value consists chiefly in the amount of carbohydrates and vegetable acids it contains. The apple contains also a large amount of phosphorus, which fact has led to the supposition that it is particularly valuable as a brain food. But the value of any

food is certainly not to be measured by the amount of phosphorus it contains. Pure phosphorus would be a poison, and even dilute phosphorus is in the highest degree unwholesome. The best foods are those that nourish the whole body, and not those that contain elements similar to those found in any one particular part of the body.

The old Scandinavians believed that the gods subsisted wholly upon apples, and that it was through the peculiar properties communicated by this queen of fruits, that they acquired the wisdom which they imparted to men.



TAKING THE CURE IN WINTER AT MUSKOKA FREE HOSPITAL FOR CONSUMPTIVES

Canadian Opinion

DR. R. W. BRUCE SMITH, Inspector of Public Charities, Province of Ontario, Official Report:—"I was specially pleased with the attention paid to conduct the Muskoka Free Hospital for Consumptives carefully and economically. The records are neatly and carefully kept. Every facility was offered me of making an examination of all the books and entries since the organization and establishment of the National Sanitarium Association. I found all the entries and vouchers correct, and every indication that a system of bookkeeping is followed that offers a satisfactory explanation of revenue and expenditures. The patients I found cheerful, happy, and evidently well looked after by those in charge. I found particular attention is paid to provide nourishing dietary carefully prepared, and the quality of the food served was excellent. This Hospital depends for its maintenance mainly upon the voluntary contributions of the public."

Foreign Opinion

DR. H. L. RUSSELL, President of the Advisory Board of the Wisconsin State Sanatorium:—"We have just recently returned from our eastern trip in which we had an opportunity of inspecting practically all the Sanatoria in the East that are designed for the treatment of tuberculosis. I am very glad to be able to write you that the very favorable impressions that we received while at Gravenhurst have continued with us after this round trip. We have found no place in our travels in which money seems to have been expended more judiciously and economically than in connection with the two institutions that are under the control of the National Sanitarium Association. Trusting that this work, which is of so much benefit to mankind, may be continued in the future, with an increased endowment."

"He gives twice who gives quickly."

CANADIAN OUT-DOOR LIFE.

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28 ADELAIDE ST. WEST (Saturday Night Building) - - TORONTO, CAN.

QUESTION OF CLIMATE

TO advise the consumptive to move to new and it may be far-distant fields and pastures green, is an easy thing for the one giving the advice. To the one advised, in many cases, it is an impossibility. More than this a strong opinion prevails to-day in well-informed circles that the advice is not always the best. Dr. R. W. Philips, of Edinburgh, Scotland, from whom we have quoted in another connection, writes: "It is of immense importance that our people should rid themselves of the prevalent notion that the cure

of consumption can only be effected under conditions which their ordinary residence and station in life will not permit them to enjoy."

Dr. S. A. Knopf, the well-known specialist on tuberculosis, has expressed a similar opinion. He points out the advantage of a patient taking the cure within the domains of the country where necessity is likely to compel him to live most of his days. One can readily appreciate the good sense of counsel of this kind.

OVER-FEEDING IN TUBERCULOSIS

THE doctrine of over-feeding in the treatment of tuberculosis does not hold the place to-day that it once did. R. W. Philips, M. A., M. D., senior physician to the Royal Victoria Hospital for Consumptives, in an article of some length in the British Journal of Tuberculosis, has this to say on the question: "There is an improved conception of the dietetics of tuberculosis, and, happily, recovery from the unthinking creed of inordinate cramming, which, while leading to gain of weight, produced soft and weakly convalescents."

More than at any other time, dietetics hold a foremost place in the treatment of consumption. The requirements of the stomach

—the question of right feeding—is being carefully studied by all who have to do with the care of sufferers from tuberculosis.

Making a local application, we are able to say that very particular attention is being given to the question by the physicians in charge of the institutions of the National Sanitarium Association, and the sister institution for advanced cases, near Toronto. A series of lectures on "Dietetics" being delivered to the patients and staff of the Muskoka Cottage Sanatorium by Dr. W. J. Dobbie, is creating very wide interest, and is an illustration of the importance attached to this subject by those most concerned.

HOSPITALS OF ONTARIO

The thirty-seventh annual report of the Ontario Government furnishes an interesting report in figures of the hospitals and refuges of the Province. There are at present in Ontario:—

61 Hospitals.	
37 Refuges.	
30 Orphanages.	
3 Homes for Incurables.	
2 Convalescent Homes.	
2 Magdalen Asylums.	
25 County Houses of Refuge.	
Number of patients in the hospitals	
Oct. 1st, 1905.....	2,549
Number of patients admitted during the year.....	37,537
Number of births in the hospitals during the year.....	1,764
<hr/>	
Total number under treatment during the year.....	41,950

Number of deaths during the year.....	2,429
Percentage of deaths to number under treatment.....	5.79
Total number of days' stay in the hospitals.....	963,696
Provincial grant to hospitals..\$	110,000 00
Am't. received from all sources	1,001,082 12
Subscriptions, donations, etc. . .	150,620 58
Total expenditure for hospitals (including capital account—\$54,070.25).....	1,228,289 00
Average cost for each patient per day	\$1 08
Percentage of Provincial grant to total maintenance expenditure.....	12½

Roof Wards a Hospital Feature

“**R**OOF wards,” which represent the latest advance which medical science has made in the treatment of pneumonia and typhoid fever, are shortly to be opened on the top of the main building of the Presbyterian Hospital, New York. The structures, railings and various appliances are the gift of a patron of the institution, who made the donation simply as “A Friend.”

Two other hospitals, whose superintendents have inspected the new roof wards of the Presbyterian, are making arrangements to install a similar equipment.

So successful was the treatment of pneumonia and kindred diseases on the roof of the institution last winter, under the direction of Dr. William P. Northrup, that it was decided to make it a feature of the hospital. Of the cases that were treated there only one death occurred, and that was due to double pneumonia, complicated with several other maladies.

In the middle of the roof of the hospital are two structures of corrugated iron, braced by steel beams, built on the principle of horse

sheds. The air has free circulation beneath the roof, which is continued out in front, with an awning frame covered with wire netting. On this, when the days are sunny, is stretched heavy canvas.

The entire roof is enclosed by a closely woven wire fence, which rises to a height of ten feet.

On the tiling is a covering of grooved flooring, which gives a surface not unlike that of the promenade deck of an ocean liner. The boards are covered with canvas, protected from the weather by several coats of paint, which makes them springy to the tread.

Many of the patients are to be brought up from the hospital wards in their beds, which are placed on the roof. Rolling chairs and steamer chairs are also provided.

The roof is divided into two areas, one a ward for women and children and the other for men. It is thought that fifty patients in all can be treated. Delirious patients do especially well under such treatment and the fresh air has a soothing effect. Children after a day on the roof fall into a deep sleep.

“The National Sanitarium Association deserves the greatest credit for the splendid work accomplished.”—*Dr. R. W. Bruce-Smith, government inspector of hospitals.*

Diet—A Factor in the Prevention and Treatment of Tuberculosis

By W. J. DOBBIE, M.A., M.D.C.M., Physician-in-Charge of Toronto Free Hospital for Consumptives.

ONE of the most important factors in either the prevention or the treatment of tuberculosis is proper diet. In the presence of poor nutrition or a chronic febrile condition and consequent continuous loss of weight it is evident that one of the natural essentials is an adequate supply of suitable food. And to compensate for the increased tissue waste the amount required in such cases is much larger than that which is sufficient to meet the needs of persons in health. And as there is usually some accompanying digestive disturbance it is equally important that the food selected should be such as can be easily digested and assimilated. And while it is important to remember that no general rule can be made which will satisfactorily cover all conditions, since each must of necessity be considered on its merits, the fact remains that by a proper appreciation of the end in view on the one hand, and with a fair knowledge of the means at hand for accomplishing that end on the other, much can be done to provide patients suffering from tuberculosis and others suffering from poor nutrition with a diet such as is suited to their needs.

So much original work has been done in recent years along the line of food values that there is little difficulty in making a practical application of the available information concerning foods and their relative values for different purposes. In institutions of course the best opportunities are afforded for the application of recognized principles of diet. There the kind of food required by each individual is not difficult of determination after observations have been made for some weeks, and to plan a special dietary containing suitable food in proper quantities is comparatively easy. The greatest difficulty is to get people to realize the importance of paying strict attention to details. Advice as to which articles of food should be avoided and which consumed freely is often disregarded. But the practical value of such a careful supervision not only of the general dietary, but also of the kinds of food and the amount of each kind best suited to the individual is everywhere being recognized. At the Toronto Free Hospital for Consumptives some observations were made recently extending over four periods of six weeks each. These revealed the fact that the average gain per patient in six weeks increased from 2.9 lbs. in the first period when there was no supervision of diet, to 3.8 lbs. in the second period when there was a more or less complete supervision of the general dietary. In the third and fourth periods when there was in addition to a

general supervision a careful consideration of individual needs the average gain per patient for each period reached 4.46 lbs.

Diet, then, is important, and for a proper appreciation of the extent to which it may be made a factor in both prevention and treatment it is necessary that some knowledge be had of the principles of nutrition and the nutritive value of foods. And it shall be the aim in this article merely to explain briefly and without being at all technical some of the more important principles in connection with food and food values, leaving the matter of the different food materials, their relative values as food, comparative cost, and the various ways in which they may be used, to be dealt with subsequently.

Constant use has made us so familiar with the ordinary foods that we seldom realize just how complicated they are. And yet it must be very patent to all that the chemical substances of which foods are composed must be very similar to those of the bodies which they nourish. Foods are made up of from fifteen to twenty elements, of which the most abundant are oxygen, hydrogen, carbon, nitrogen, calcium, phosphorus and sulphur. These elements are so combined as to form a great variety of compounds in both the body and food. Of the compounds the most important are proteins, fats, carbohydrates, mineral matters and water.

Water enters into the composition of every tissue and forms more than 60 per cent. of the entire body weight of a full grown man. As it is not burned up in the processes of digestion and assimilation it does not furnish any energy and is eventually eliminated in the same form in which it was ingested.

Mineral matters form only some 5 or 6 per cent. of the body by weight, and are found chiefly in the bones and teeth, though of course they are present in the other tissues and in solution in the various fluids. These mineral matters are necessary to life and so are an important ingredient in food. Fresh meats and fish contain not far from 1 per cent., although in fat unsalted pork the quantity may be as small as 0.1 per cent. Milk contains about 0.7 per cent. In the cereals the proportion ranges from about 0.3 to over 2 per cent., while in green vegetables and fruits it is usually less than 1 per cent.

Of the actual nutrients the most important is the protein. It includes the principal nitrogenous compounds and is familiar to us as the lean and gristle of meat, the white of eggs, the gluten of wheat, etc. It forms about 18 per cent. by weight of the body, and when these nitrogenous compounds are

consumed as food they make the basis of bone and muscle and other tissues. They are also used as fuel, that is they are burned in the body to yield energy, and they are to some extent stored in the body as fat, though these are their less important uses.

Protein is found most abundantly in animal foods, meat, fish, eggs and dairy products, and in beans and peas. The proportion of protein present in meats varies with the kind and cut. In beef, veal and mutton it comprises between 14 and 26 per cent. of the edible portion. It is generally less abundant in the flesh of fish, because the latter is more watery than meat. The fatter the meat the smaller is the proportion of protein; lean pork has less than beef and mutton, and fat pork almost none. Protein makes up from 7 to 15 per cent. of the cereals, being least abundant in rye and buckwheat and most abundant in oats. Wheat flour averages not far from 11 per cent. and bread not far from 9 per cent. of protein. Fresh vegetables and fruits contain almost no protein.

Fats occur in the body in masses under the skin and elsewhere, and in minute particles scattered throughout the various tissues. The amount, of course, varies with food, exercise, age and other conditions, but usually forms about 15 per cent. by weight of the body.

The chief sources of fat in ordinary diet are the animal foods, though some fat is derived from vegetable foods. The quantities present in meats vary considerably, ranging from less than 10 per cent. in some cuts of beef and veal to over 40 per cent. in a side of pork and over 80 per cent. in fat salt pork. The leaner fish like cod and haddock usually contain almost none, but in the fatter kinds, like mackerel and notably salmon, there is often from 5 to 10 per cent. and sometimes as much as 15 per cent. of fat. Milk averages about 47 per cent. of fat, and butter is nearly all fat. Most of the common edible nuts contain considerable fat.

Carbohydrates form only a very small proportion of the body tissues—less than one per cent.—but are very important and abundant food ingredients. They include such compounds as starches, different kinds of sugar, and the fibre of plants, and unlike the fats, they are almost entirely absent from the animal foods, except milk, but form the most important nutrient of most vegetables. They make up from 70 to 80 per cent. of the cereals, 60 to 70 per cent. of the dried legumes and the bulk of the nutrient of fresh vegetables and fruits, while the nutrients of sugar, molasses, honey, etc., are of course almost entirely of this class, the main carbohydrate, of course, being starch.

The chief uses of food are two; (1) to form material of the body and repair its wastes, and (2) to furnish muscular and other power and to yield heat to keep the body warm. In forming the tissues and fluids of the body, food serves for building and repair; in yielding power and heat it serves as fuel.

And so in discussing the subject of diet it is necessary to take a different view of food from that to which we are accustomed. We must consider food not as a whole but as to the nutriment it actually contains. We must not speak of beef, bread, potatoes, butter, &c., but of protein, carbohydrates and fat. The myosin which forms the basis of lean meat, and of the flesh of fish, the ossein of bone, albumen of egg, casein of milk, gluten of wheat and the like are protein. Of the fats we have examples in butter, olive oil, and the oils of corn and other vegetables. Carbohydrates do not occur to any extent in meats and fish, but are found in milk-sugar and are the chief nutrient ingredients of vegetable foods. The mineral matter and water also are necessary for nourishment but we do not generally take these into account in studies of dietaries.

Proteins are sometimes called flesh formers because the flesh, *i.e.* the muscle and sinew is best formed from them, though they make blood and bone as well and can also be transformed into fat. The fats and carbohydrates are the fuel ingredients. Both of them are transformed into the fat of the body which is the reserve of fuel. The protein can serve as fuel also, but the fats and carbohydrates cannot build nitrogenous tissue, for protein contains nitrogen and they do not.

Chemists have devised ways for estimating the fuel values or, to use a more correct term, the potential energy of the nutriments of food. This is expressed in heat units, called calories, the calorie being the amount of heat that would raise a pound of water about 4° Fahrenheit. A pound of rather fat sirloin steak would contain about 900 calorie, a pound of butter 3500, a pound of wheat-flour about 1600, and a pound of potatoes about 340 calories. The potatoes yield so little because they are three quarters water, and the butter so much because it is mostly fat.

In the adjusting of diet to the demands of the body the important matter is to provide enough protein for the building and repair of tissue and enough energy to keep it warm and to do its work. When the average housewife goes to the market to buy supplies for the table she is thinking of meat, and flour, and potatoes, what they cost and how the people at home will relish them. She does not realize that she is buying certain nutritious substances, flesh formers, fuel ingredients, and energy producers.

And in combating tuberculosis the aim is to furnish the patient with the most nutritious general diet, with liberal proportions of proteids and fats. In tuberculosis the constant tendency to loss of tissue makes the importance of proteid evident. Proteids however are assimilated with difficulty by the body and it is for that reason necessary to use the proteid spacers, *viz.* fats and carbohydrates, to supply the heat and energy

required so that the proteid may be used entirely to repair tissue. Experiments on tuberculous patients show that they should eat daily about

- 4½ ounces of proteids
- 5 “ “ fats
- 10½ “ “ carbodydrates.

Such amounts would be furnished by the following:—

	Proteids	Fats
Meat, 4½ ounces.....	1 ounce	½ ounce
One egg, 2 ounces....	¼ “	⅓ “
Milk, 3 pints.....	2 “	2½ “
Porridge, plateful....	⅓ “	“
Bread, 8 ounces.....	1 “	“
Butter, 2 ounces.....	Trace	1½ “

4½ ounces 4½ ounces

A man in health requires:—

- Proteid..... 3⅓—4⅓ ounces.
- Fat..... 1⅓—2⅓ “
- Carbohydrate . . . 15—18½ “

Besides these important considerations viz. the object aimed at in a diet for patients suffering from tuberculosis and the relative nutritive value of the different food materials at hand, other matters worthy of attention are those pertaining to digestion, assimilation, and excretion, those concerned with the preparation of foods including cooking, etc. These are wide subjects however and can only be dealt with very briefly.

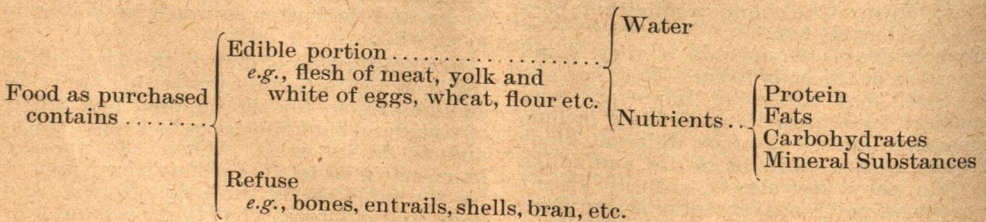
The digestion of food takes place through a number of chemic changes brought about in the alimentary canal by the action of certain ferments usually known as enzymes. With these, then, alterations are produced mechanically, the food being broken up into fine sub-divisions is digested in such a way

that the useful portions may be assimilated while the remainder passes off as refuse. The enzymes are complex substances the exact chemic nature of which has not as yet been accurately determined. Of these the most important are (1) the *ptyalin* chiefly found in the salivary secretion, its work being to convert starch into sugar, (2) the *pepsin* chiefly found in the gastric juice, its function being to convert proteins to peptones, (3) the *amyllopsin* of the pancreatic juice, for converting starch into sugar, (4) the *trypsin* also of the pancreatic juice useful for splitting proteins into simple products, and (5) the *steapsin* of the pancreatic juice for digesting fats.

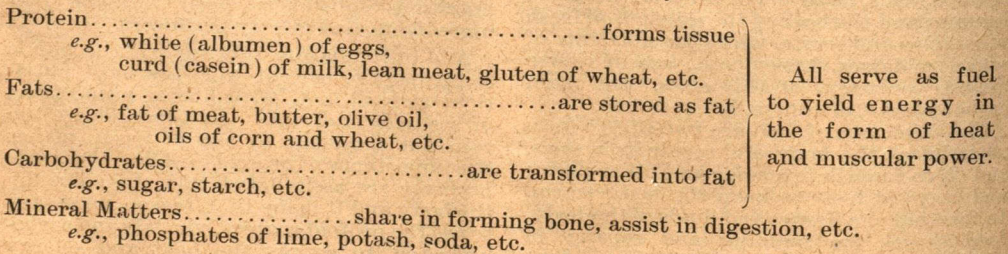
After a food is digested it is absorbed. This material absorbed may enter directly into the blood or may pass into the lacteals before reaching the blood stream and the real nutritive value of a food material is determined not only by the amount of nutritious ingredient which it contains, but also by the proportion of those ingredients which can be digested, assimilated, and used by the body. Other things being equal foods furnishing nutrients which can be most easily and completely utilized by the body are the most desirable since they will not throw unnecessary work on the various organs. Many kinds of food in the natural state hold the most valuable nutrients in such a form that the digestive juice cannot easily work upon them. These are so changed in the process of cooking that they become easily digestible. Thus the importance of proper cooking can hardly be over estimated.

Regarding then the ingredients of food and the ways in which they are used in the body the following summary may be given:

Nutrient Ingredients (or Nutrients) of Food.



Uses of Nutrients in the Body.



HUMAN AND ANIMAL TUBERCULOSIS

The Question Settled By The Royal Commission
On Tuberculosis.

THE second interim report of the Royal Commission on Tuberculosis, appointed on August 23rd, 1901, has now been issued. The commissioners were the late Sir Michael Foster K. C. B., F. R. S. (chairman), Professor German Sims Woodhead, Professor Sidney Harris Cox Martin F. R. S., Sir John McFadyean, and Sir Rubert William Boyce F. R. S.

The commissioners summarize the bearings of the results at which they have already arrived in these words:

"There can be no doubt but that in a certain number of cases the tuberculosis occurring in the human subject, especially in children, is the direct result of the introduction into the human body of the bacillus of bovine tuberculosis; and there also can be no doubt that in the majority at least of these cases the bacillus is introduced through cows' milk. Cows' milk containing bovine tubercle bacilli is clearly a cause of tuberculosis and of fatal tuberculosis in man.

"Of the 60 cases of human tuberculosis investigated by us, 14 of the viruses belonged to group I—that is to say, contained the bovine bacillus. If, instead of taking all these 60 cases, we confine ourselves to cases of tuberculosis in which the bacilli were apparently introduced into the body by way

of the alimentary canal, the proportion of group I becomes very much larger. Of the total 60 cases investigated by us, 28 possessed clinical histories indicating that in them the bacillus was introduced through the alimentary canal. Of these, 13 belong to Group I. Of the nine cases in which cervical glands were studied by us, 3, and of the 19 cases in which the lesions of abdominal tuberculosis were studied by us, 10 belong to Group I.

"These facts indicate that a very large proportion of tuberculosis contracted by ingestion is due to bacilli of bovine source.

"A very considerable amount of disease and loss of life, especially among the young, must be attributed to the consumption of cows' milk containing tubercle bacilli. The presence of tubercle bacilli in cows' milk can be detected, though with some difficulty, if the proper means be adopted, and such milk ought never to be used as food. There is far less difficulty in recognizing clinically that a cow is distinctly suffering from tuberculosis, in which case she may be yielding tuberculous milk. The milk coming from such a cow ought not to form part of human food, and, indeed, ought not to be used as food at all.

"Our results clearly point to the necessity of measures more stringent than those at present enforced being taken to prevent the sale or consumption of such milk."

Muskoka Free Hospital for Consumptives

Cares for Patients in Early Stages of Consumption

Only Hospital in the Dominion That Accepts Tuberculosis Patients from Every Part of Canada.

No Patient Has Ever Been Refused Admission Because of His or Her Poverty

Cares for Patients All Other Hospitals Refuse.

Money is urgently needed to care for the many patients continuously in residence and to extend the accommodation that more may be admitted. Will you help? Contributions may be sent to Sir Wm. R. Meredith, Kt., Osgoode Hall, Toronto, or W. J. Gage, Esq., 84 Spadina Avenue, Toronto.

THE WORK AT MUSKOKA

THE National Sanitarium Association is the pioneer association in Canada in the erection of sanatoria for consumptives. Within a year of the incorporation of the Association in 1896, the Muskoka Cottage Sanatorium was erected—the first sanatorium for the care of consumptives in Canada. With accommodation then for a limited number of patients only, the institution has grown, until to-day provision has been made for 86 patients, exclusive of the guests' cottage, which is set aside specially for visitors, and the cottage of the Physician-in-Chief.

MUSKOKA COTTAGE SANATORIUM

The Muskoka Cottage Sanatorium is known as the "pay" institution of the National Sanitarium Association. The accommodation and equipment will compare favorably with that of other sanatoria in the United States or abroad. It owes its inception, as the pioneer institution in Canada, to the generous cash gifts of Mr. W. J. Gage, amounting to \$20,000, and the Hart A. Massey estate of \$20,000. The institution is built on the cottage plan, and includes six handsome cottages costing sums varying from \$2,500, as building was possible eight years ago, to \$5,700. The donors of these

cottages are:—Mr. Wm. Christie, Mrs. T. H. Bull, Mrs. Jackson Sanford, of Hamilton, the late Thos. McCormick, of London, Mr. Wm. Davies, bequest of Mrs. Maver, of Pickering.

MUSKOKA FREE HOSPITAL FOR CONSUMPTIVES

In 1901 work was commenced on the Muskoka Free Hospital for Consumptives, situated a mile distant from the Sanatorium. The need of a hospital for the care of indigent patients had become so pressing that this step was found necessary. This institution, like the former, was also made possible through the gifts of Mr. W. J. Gage and the Hart A. Massey estate, each of whom gave \$10,000 in cash. In 1902 the first patient was received into the Muskoka Free Hospital, and up to the present time 825 have been cared for. Add to this upwards of 1,500 patients who have been at the Cottage Sanatorium, and there have been all told over 2,300 patients treated in these two Muskoka institutions. Provision exists at the Muskoka Free Hospital for 75 patients in residence. **The Free Hospital has ever lived up to its declared policy at the outset, in never refusing a single patient because of his or her poverty.**



SHACK LIFE AT THE MUSKOKA FREE HOSPITAL FOR CONSUMPTIVES.

LETTERS TO THE EDITOR

CANADIAN OUT-DOOR LIFE will always welcome letters from its readers, discussing questions suitable to its columns. Such contributions must be accompanied by the name of the writer, not necessarily for publication, though our own opinion is that a letter over the name of the writer carries more influence than if unsigned.

Consumptive Emigrants

My Dear Sir,—

Like all progressive persons, medical and lay, I have given some consideration to the important subject of lessening the white plague. I am becoming more and more impressed that the emigrant horde are furnishing a large quota of consumptives. This is exemplified in the fact that one-third of the patients at Muskoka are of foreign birth. I have thought that advanced cases should be kept, as in distributing them again to their homes, there is increased danger of communicating to others. Of course if this were done, much greater hospital accommodation would be required. Still I find that the instruction and training given at isolation hospitals is largely instructive to the public. I am satisfied that both Dominion and Provincial Governments are willing to assist in this plague eradication, but I doubt, although the local machinery is large enough and the efforts of the officials honest, but it strikes me that the great mistake is that it is misdirected. I do not think we secure the best results, besides being decidedly more cruel in examining the emigrant on his arrival in this country.

I do think that medical experts at such ports of departure as London and Liverpool would serve the purpose much better if the infected were not allowed to sail. They would not infect others on the ship nor would they have an opportunity of poisoning others here. It is really too bad to let the unfortunate creatures reach here, perhaps experience inclement weather, and send them back worse than they came. I present this view of the question as being, to my mind, of some importance in our consideration of ways and means.

Yours truly,

PALMER BURROWS, M.D.

Lindsay, Ont.

LITERARY NOTES

For the story readers products of all McClure's fiction favorites will appear and a large number of writers who have "hit" recently. Such well-known names as Joseph Conrad, Mary Stewart Cutting, Perceval Gibbon, Viola Roseboro, Myra Kelly, Rex Beach, Mrs. Wilson Woodrow and Helen R. Martin give promise of as good stories of various sorts as any reader could wish.

Ellen Terry a Lover of Fresh Air.

ADVOCATES of the fresh air theory find an ardent supporter in Ellen Terry. Most English persons are, for that matter, believers in fresh air, but Miss Terry goes to the extreme. She is, herself, perhaps, the best example possible to conceive of the effects of fresh air if she owes her appearance and health to it, and she says she very largely does. Despite the fact that she is now in her sixtieth year, she is as young in appearance and action as a vast majority of women one-third her age. She uses no paints nor powders, flesh foods, lotions, or other artificial aids. She has no crow's feet, nor even laughing wrinkles, although she laughs a great deal, not only in the characters she assumes, but also in private. She is as light on her feet as a young girl, and has a custom of literally skipping about her apartments on the stage, and does so without regard to whether she is being seen or not.

In fact, does so unconsciously, a natural ebullition of good health. Now for the part fresh air plays. Ellen Terry demands not only fresh air, but cool air; about the only stipulations she makes concerning her apartments while en tour are that they shall be high up above the ground, with plenty of windows and with no steampipes running through them from which the steam may not be turned entirely off. The same rule applies to her dressing room in the theatre. In her apartments she has her bed turned around so that the head of it is immediately in front of a wide open window, and there she sleeps in the coldest weather, with utter disdain for colds, coughs or any affection of the nose, throat or lungs. Even after a performance at the theatre through which she moves physically with more or less rapidity and sometimes runs the entire gamut of emotion, in itself most exhausting, she prefers at the end to walk to her hotel rather than use a carriage.

EVERYONE

who contributes One Dollar or more to the maintenance of patients at the Muskoka Free Hospital for Consumptives will receive,

Canadian Out-Door Life

for one year.

Do It Now.

LITERARY NOTES

THE life story of E. H. Harriman, the man who reorganized the Union Pacific Railroad and created the "Harriman System" of Western roads, is at last told at length in the January *Review of Reviews* by Carl Snyder. Very little material of an authentic nature has heretofore been printed concerning this modern "Colossus of Roads," as the editor of the *Wall Street Journal* very aptly styles Mr. Harriman. The article by Mr. Snyder is both illuminating and convincing. It is based on a thorough study of the Western railroad situation, and of Mr. Harriman's relations thereto.

IN the January number of McClure's will begin the Life of Mary Baker G. Eddy and the History of the Christian Science Movement. For the first time a complete, impartial and true story of Mrs. Eddy and Christian Science is to be had—it will run throughout the year. Georgine Milmine has written the story—for nearly three years she has pursued her study of the subject. Five other writers of McClure's staff have worked with her to make this story accurate, fair, unbiased and complete. In view of the fact that for some months the press has been full of diverse and conflicting news and statements regarding Mrs. Eddy, it is evident that accurate knowledge concerning her is difficult to obtain in a short time. Consequently McClure's long and thorough preparation of its series will give us for the first time a true history and account of her and her cult.

GUNS AND RIFLES

Let us quote you a price on a good shot gun. W. W. Greener or Scott's English guns always in stock.

MALIN, WINCHESTER, SAVAGE RIFLES

AMMUNITION

OF ALL KINDS

Shot shell (all sizes) loaded with black or smokeless powder.

RICE LEWIS & SON LIMITED

Cor. King and Victoria Sts., TORONTO

What It Costs to Run an Automobile

THE prospective automobile purchaser must realize even though he buys a runabout,—the smallest type of motor, carrying the driver and one other passenger,—he is not going to be able to keep the car in operation for \$5 or \$10 a month. It has often been said, and truly, that it is not the first cost of an automobile that counts so much as the maintenance expense. It may be possible for a man with a small car who motors modestly to get along with an expense of \$20 or \$30 a month if he has good luck and handles his car carefully and considerately, but the average cost of maintenance will be from \$50 to \$300 and even more a month. Here are some figures from bills I paid while the owner of a car of the runabout type with a single cylinder 8-horsepower engine and convertible body carrying two or four passengers. These are my expenses for seven months, from April to November, when I

covered nearly 10,000 miles. My bill for April follows:

April 1. Four hours time on adjustments.....	\$2.00
One gallon of cylinder oil.....	.75
Two inner tubes.....	15.00
Extra fan belt.....	1.50
6. Repairing puncture.....	.75
10. Repairing puncture.....	.75
12. One auto jack.....	4.50
14. Four hours' time adjusting.....	2.00
18. Half gallon cylinder oil.....	.38
21. Patching inner tube.....	.75
23. Two hours time adjusting.....	1.00
26. Extra spark plug.....	4.50
30. One month's storage.....	12.00
Gasoline for the month.....	10.00
Total.....	\$55.88

My bill in May was \$67.22 and was made up chiefly for mechanics' time in making adjustments, as I was not then familiar enough with the car to do this kind of work myself.—From "The Automobile and the Average Man," by Harry B. Haines, in the *American Monthly Review of Reviews* for January.