The BULLETIN OF THE VANCOUVER MEDICAL ASSOCIATION

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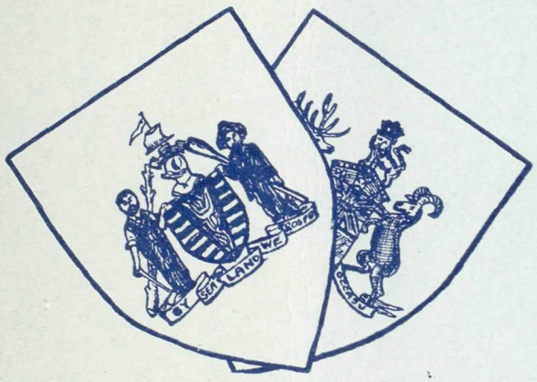

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THE VANCOUVER MEDICAL ASSOCIATION

BULLETIN

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VANCOUVER HEALTH DEPARTMENT

STATISTICS—MARCH, 1935

Total Population (Estimated)	244,329
Japanese Population (Estimated)	8,037
Chinese Population (Estimated)	7,803
Hindu Population (Estimated)	276

	Number	Rate per 1,000 Population
Total Deaths	220	11.0
Japanese Deaths	5	7.6
Chinese Deaths	12	18.7
Deaths—Residents only	197	9.8
Birth Registrations— Male, 156; emale, 140	296	14.7

INFANTILE MORTALITY—	April, 1935	April, 1934
Deaths under one year of age	4	7
Death rate—per 1,000 births	13.0	28.7
Stillbirths (not included in above)	4	12

CASES OF COMMUNICABLE DISEASES REPORTED IN THE CITY

	March, 1935		April, 1935		May 1st to 15th, 1935	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Smallpox	0	0	0	0	0	0
Scarlet Fever	37	0	52	0	27	0
Diphtheria	0	0	5	3	0	0
Chicken Pox	60	0	74	0	89	0
Measles	13	0	60	0	109	0
Rubella	4	0	5	0	4	0
Mumps	33	0	28	0	19	0
Whooping-cough	63	0	47	0	38	0
Typhoid Fever	5	0	0	0	0	0
Undulant Fever	0	0	0	0	0	0
Poliomyelitis	0	0	0	0	0	0
Tuberculosis	46	7	38	12	31	--
Meningitis (Epidemic)	0	0	0	0	0	0
Erysipelas	2	0	1	0	1	0
Encephalitis Lethargica	0	0	0	0	0	0
Paratyphoid	0	0	0	0	0	0

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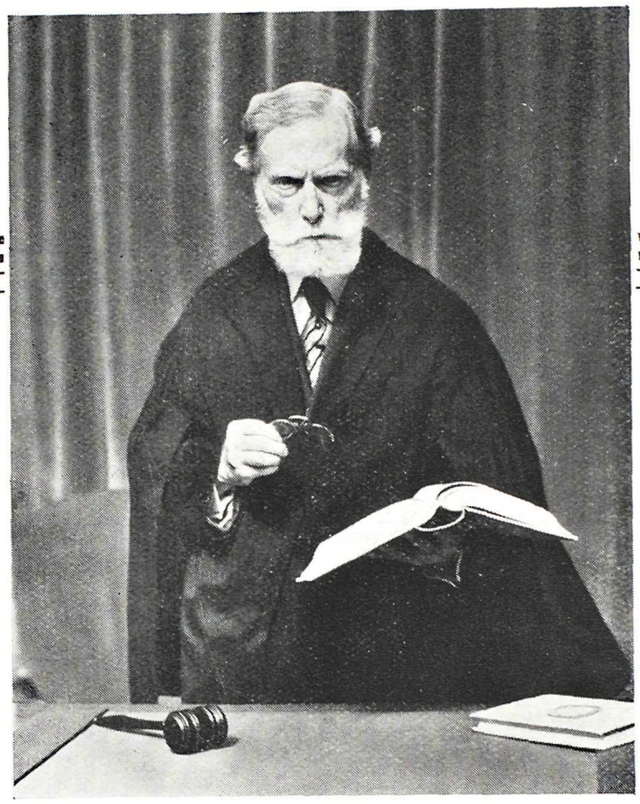
References: "Ask the Doctor who has used it."



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EDITOR'S PAGE

It is with great pleasure that we publish the "Memorandum on Cancer" handed to us by the B. C. Cancer Foundation recently inaugurated in British Columbia. We would urge all our readers to keep this number carefully for future reference. The monograph gives in brief and available form the latest opinions on the scope of the cancer problem, and the best ideas yet evolved as to the methods that must be followed if this age-old menace to humanity, that has lost none of its virulence with the passing centuries, but has rather taken on new and more potent life in our day, is to be met and, under the providence of God, mastered or at least controlled.

Perhaps, as some think, it will never be possible to wholly defeat this enemy, any more than we can ever defeat death or madness—for it is a madness of the tissues of the body—a senile dementia of the cells. But we need not therefore adopt a defeatist attitude towards cancer. Quite otherwise—there is every reason to attack this problem with the greatest certainty of ultimate victory. It would seem to us that there are certain lines that must be followed, and these are the lines suggested by this report.

First, *education* of a constructive order, and the laying of emphasis on the essential hopefulness of our position. And education must be directed not alone to the patient—whom we must try, by convincing logic, to train to seek advice early—but to our own profession, whose sins of omission, not less than of commission, are to no small extent responsible for the present appalling mortality. And, too, governing bodies of all sorts must be approached and educated to the terrible seriousness of the problem. This is not a private war, it is on all our doorsteps, and there are no neutrals.

Secondly, *preventive measures*, and here we think that great emphasis must be laid on periodical health examinations, properly and sincerely carried out. We know that cancer has, in perhaps the majority of cases as we know the disease at present, perhaps even more as we shall come to know it, a latent and early period, when cure is almost mathematically certain, with *adequate and thorough treatment*. It is perhaps a more chivalrous foe than we have ever realised, and gives its prospective victim the *"En garde!"* that will allow him time to draw and defend himself.

Thirdly, *treatment*, very much more complete and modern than anything we have in British Columbia as yet. It is not a thought to give us pride that we are the only province in Canada, except the small province of Prince Edward Island, that has no publicly owned radium, and that has not yet considered this problem from a provincial point of view.

Fourthly, *research*. This must be carried on more and more energetically if we are to advance beyond a purely defensive stage—if ever we are to arrive at the *"sterilisatio magna,"* the much hoped-for and longed-for cure of cancer. This may not come till long after we have gone—it may not come in the form we think—but if it is to come, we must as a race earn it, by the sweat of our brow. For there is abundant proof that there is no royal or easy road to this goal. When it comes, we shall, in the achieving of this end, have delved deep into the mysteries of life, its origin, its first causes, and the reasons for its decay—and this is no easy field to cultivate.

But we in British Columbia have great reason for renewed hope. There has been great work done in the past few weeks. Beginning some short time

ago, a Committee was appointed by the B. C. Medical Association to initiate and devise methods for the control of cancer in B. C. Working in conjunction with the Greater Vancouver Health League and the Board of Trade, a very strong group of men has organised a British Columbia Cancer Foundation, incorporated itself, and is shortly starting an active campaign for funds.

On the 3rd of June, a large luncheon meeting will be held in Vancouver, to which a great many men, prominent in public life, and having influence that will be helpful, will be invited, with a view to getting away to a good start. It must be understood that this is not a Vancouver project—it is provincial in scope, and will embrace the whole of B. C. But Vancouver is in the strategic position for its inauguration, and it is the particular duty of this city to take the lead, since it is the chief sufferer from the scourge. At this meeting, and in subsequent efforts of publicity, the extent of the problem, its various angles, and the suggested lines of attack, will be pointed out, and the sympathy and active support of the public sought.

And what of us? What can we do? We must give this thing our fullest support. It is again a question of the responsibility that comes from privilege. In any case, we are the troops, and will have to do the actual fighting in this campaign. We do not doubt the loyalty and hardihood of our troops —but we feel that the actual extent of the war, and the tactics necessary to win it, are not yet well understood by the rank and file—and it is therefore incumbent on every one of us to familiarise himself with the aspects of the situation. Meantime we wish the new B. C. Cancer Foundation the greatest success in the work that it has undertaken. The list of names of the men who have begun this work will be of interest to our readers and we publish them herewith:

W. J. Twiss, W. C. Ditmars, Norman Levin, B. J. Harrison, M.D., H. H. Milburn, M.D., G. F. Strong, M.D.

* * * *

Last month we commented on the changes in the Council of the College of Physicians and Surgeons. There is one more change that deserves to be chronicled, but which had not at that time been made. That is the definite appointment to the position of Registrar of Dr. John A. MacLachlan of Vancouver.

Dr. MacLachlan has been acting Registrar since the death of Dr. A. P. Procter. He has been a member of the Council for some nine years, and is amply fitted by experience as well as other qualifications to fill this most important office. The Registrar of the College is a very busy man and very much a "key" individual. He is the first line of defence between the College, and that is the medical profession, and the public at large. As he acquires wisdom and tact and ability to judge people, he becomes really essential. But to do this he must have in him certain native qualities of kindliness and friendliness, as well as mere ability. Dr. MacLachlan has these indispensable qualities in no small degree, and those of us who have had to deal with him in an official capacity have marked his ability to keep his temper, and see the other man's point of view. We may seem to be making rather much of an appointment which perhaps compares unfavourably as regards salary and opportunities for publicity with many other positions—but after all, it concerns us all vitally that the man who fills this position should be of the right type and calibre, and we feel that the Council acted wisely when it made its choice.

NEWS AND NOTES

Do not forget to buy your ticket for the Summer School, June 18, 19, 20, 21. These are now on sale.

* * * *

The Editor acknowledges with thanks an anonymous letter designed to brighten life by suggesting a suitable crest for the Association. We commend its ingenuity, but feel that the suggestion, while distinctly good, is lacking in one or two particulars.

In the first place, as regards the Book. We applaud the idea of having a Bible—it does great credit to the mind that conceived it—and we are sure that, given time and some intensive training, the medical man at large might be induced to read it; and it would do him a lot of good if he could understand it. But at present for most of them, we fear, it is a foreign language, and does not really reflect the Medical Association at all accurately. So perhaps we might make a start with Gray's Anatomy, or Anthony Adverse.

Then the field: *argent*. This again would be quite strange to the doctor, if, as we believe, it means silver. Only Dan McLellan knows much about silver, and, of course, the g.u. men such as Lee Smith. If a white surface were required, *mercury* might be more appropriate, if a bit unstable. Zinc oxide would do perhaps, though inclined, like all of us, to acquire a slightly yellow tinge as it grows older. Has he not got his adjectives mixed, too, when he speaks of a skull *couchant*, and an obstetric forceps *rampant?* We should be inclined to reverse them and say "*accouchant*" instead of *couchant*.

Otherwise the crest is excellent, and we endorse it thoroughly.—Ed.

* * * *

A rather poorly attended meeting was held in the Medical-Dental lunch-counter at 9:15 a.m., April 27th. His Worship Mayor G. G. McGeer was in the chair (the one nearest the street door). On his left was seated Dr. Lyle Telford. Proceedings were opened by the Mayor hammering the counter with a knife-handle and calling for dry toast. The situation developed rapidly after that and the reporter has the impression that what commenced as an impassioned plea for something on the part of the Mayor developed at once into a debate with Dr. Telford. His Worship was understood to say that the situation was impossible, but when he had finished with two or three matters which he had now on hand, then, and then only, could he give his undivided attention to something else. Dr. Telford appeared—for once at least—to express agreement. At least fifty per cent of the audience had departed by this time, leaving the reporter alone. A silver collection was taken by Agnes. The meeting then broke up and the windows and plates ceased to rattle.

* * * *

We congratulate Drs. R. E. McKechnie, Isabel Day and George Seldon on the presentation to them by His Majesty the King of Jubilee Medals ,for public service well done. It has been rumoured in the paper that many people have felt that they, too, should be rewarded. Perhaps one reason why the new silver dollars were issued about the same time as the medals was so that nobody should feel slighted. Except the Editor of this journal, who received neither one nor the other.

* * * *

Dr. G. F. Amyot has left for the East, to study public health matters. His work is being taken by Dr. S. Stewart Murray.

* * * *

The Council of the College of Physicians and Surgeons has appointed

Dr. W. E. Ainley, one of its members, to be Chairman of the Health Insurance Committee of the Council. The following are the members of this Committee: Dr. G. F. Amyot, Dr. L. H. Appleby, Dr. W. A. Clarke, Dr. J. A. Gillespie, Dr. B. D. Gillies, Dr. J. J. Gillis, Dr. G .C. Kenning, Dr. J. H. MacDermot, Dr. N. E. McDougall, Dr. W. H. Sutherland, Dr. Wallace Wilson, Dr. F. N. Robertson and Dr. R. L. Miller.

* * * *

It is more than probable that Dr. Grant Fleming will be out here again this summer, and will be available for advice and help by the profession.

* * * *

Dr. Gordon M. Kirkpatrick has joined the medical staff at Essondale.

* * * *

Dr. Earle Hall, recently of Nanaimo, has begun practice in Vancouver. He is confining his work to urology.

* * * *

Definition of a "general practitioner": One who can tell measles from rheumatism without the help of a laboratory girl.—*Maclean's Magazine.*

INCOME TAX DEPRECIATION ALLOWANCES

The Secretary,
College of Physicians and Surgeons,
Vancouver, B. C.

Sir:—For your nformation, I am enclosing herewith an extract from a Departmental ruling recently issued regarding depreciation allowances, insofar as it affects the Medical Profession.

Perhaps you will see fit to circularize your members in accordance therewith.

Yours faithfully,
CHAS. R. BROWN,
for Commissioner of Income Tax.

PROVINCE OF BRITISH COLUMBIA

The following rates and general principles relating to depreciation are effective in respect of fiscal years ending on and after September 30, 1934.

The rates hereinafter set out, or such lesser rates as the taxpayer may adopt, must be consistently applied, irrespective of whether operations are profitable or otherwise.

Classification	*Maximum Rates*
Furniture and fixtures	5%
Professional equipment (medical, surgical, dental, engineering; including standard reference books)	5%
(Miscellaneous instruments and current text-books should be charged directly to expense.)	
Autos and trucks (see below)	20%

The method of application will be the "straight line," as heretofore.

The *depreciable amount,* to which these rates will be applied in computing annual depreciation allowances, is:

(a) As to the original owner: cost.

(b) As to a subsequent owner: his purchase price, provided it does not exceed the original cost, less depreciation allowed.

The *residual value*: The policy adopted in 1933 of establishing a residual

balance and discontinuing depreciation allowances when they have reached 75% of the depreciable amount, will continue in effect. When any asset is discarded and *actually replaced,* the residual value, less realized salvage, will be allowed as a deduction from income from the year in which replacement is made; conversely, if the realized salvage exceed the residual value of an asset so *replaced,* such excess constitutes taxable income. However, in the case of discarded assets which are *not* replaced, no further deductions from income will be allowed nor will realized salvage be treated as income, except in the case of such assets as may have been wholly depreciated heretofore.

Amended assessments will be made in every case where depreciation at approved rates, in respect of any assets has exceeded:

(a) 100% as at the close of a fiscal or business year ending prior to September 30, 1933.

(b) 75% for years ending on and after that date.

Treatment of Repairs, Renewals, Replacements and Additions.—An allowance for depreciation is made to compensate the taxpayer for wear and tear, occasioned by the use of an asset in producing income, and the annual depreciation allowances are accumulated in a reserve, for the express purpose of providing for the anticipated cost of the renewals and replacements, which will be necessary, in addition to minor repairs. These minor repairs are, of course, allowed as a direct expense, but *renewals, replacements and major repairs* must, in all cases, be charged to the depreciation reserve. Only in the case of *additions and extensions* may the cost be capitalized and the depreciable amount, on which the annual allowances are based, be increased.

Exceptional Cases.—An exception is made to the foregoing in the case of the following: Autos and trucks—annual allowances 20%.

The full cost of these assets may be depreciated at the stipulated rates with the proviso that any difference between the amount of realized salvage and the undepreciated balance will be treated as a taxable profit or deductible loss, as the case may be.

COMMISSIONER OF INCOME TAX.

RECENT ADDITIONS TO THE LIBRARY

Surgical Clinics North America. Philadelphia number.
Carson's Modern Operative Surgery, new edition, 1934.
Industrial Toxicology: Alice Hamilton, 1934.
Life of Dr. Francis John Shepherd: W. B. Howell.
The Autonomic Nervous System, 2nd ed.: Kuntz.
Pharmacology and Therapeutics: Cushny, 1934.
Transactions of section of Ophthalmology, A.M.A., 1935.
Transactions American Otological Society, 1935.
The Harvey Lectures, 1935.
Transactions American Ophthalmological Society, 1934.
Bronchoscopy, Esophagoscopy and Gastroscopy: Chevalier Jackson, 1934.
Heredity and Disease: O. L. Mohr, 1934.
Treatment of Fractures: L. Boehler, 1935.
Medical Clinics North America. March, 1935. Chicago number.
Surgical Clinics North America. April, 1935. New York number.
Tropical Medicine: Sir Leonard Rogers, 1935.
Respiration: Haldane and Priestley. New edition, 1935.
Problems of the Deaf: Max Goldstein.

THE CANCER PROBLEM IN BRITISH COLUMBIA

Historical

Cancer is not a disease of civilization. It is a disease older than man himself. Tumours in the fossil bones of extinct animals were first recognized among the cave mammals of Europe, which inhabited the earth twelve million years ago, and further evidence of bone cancer is found in each succeeding geological period. The first mention of it in medical writing in the earliest medical documents yet discovered, is in the Evers Papyrus written about 1500 B.C., and in the development of medicine through the succeeding centuries we find the problem of cancer compelling the attention of leaders of medical thought. Democedes, a distinguished Greek surgeon, and employed as city physician in Athens at a salary of $2000.00 a year, describes the surgical cure of a breast cancer in 520 B.C. Later we have such outstanding men as Celsus, a contemporary of Christ, and Galen a century later, devising means of treating this dread disease.

After this early enthusiasm of Greek civilisation there follows a long sterile period of about 1000 years, when even the practice of surgery was in disrepute owing to the ban of the Church placed upon it in 1162 by the Council of Tours.

With the Renaissance and the invention of printing came a great impetus to the spread of medical as well as other knowledge, and in the succeeding years the majority of the master minds in medicine were intrigued by the problem of cancer. Surgeons, physicians, pathologists, biologists, and more recently radiologists, have devoted their lives to this important and interesting subject and have enriched our knowledge by many valuable discoveries. However, in spite of all this effort and devotion, the fate of the great majority of cancer patients was a tragic one.

In the eighteenth century cancer was regarded as contagious, a view which led to infliction of unnecessary cruelty upon the sufferers from this disease. They were excluded from general hospitals and forced to shift for themselves. A Canon of Rheims, Jean Godinot, founded the earliest cancer hospital in 1740, which was equipped with only twelve beds. So to France must be accorded the honour of having provided the first hospital for the treatment of patients suffering from cancer. In England the honour goes to the Middlesex Hospital with the formation in 1791 of its Cancer Charity, which has devoted unremitting attention to the subject up to the present time.

The modern era of systematic and scientific research began in 1901, with the work of the Danish pathologist Jensen. In 1902 in England the Imperial Cancer Research Laboratories were opened, and institutions formed on similar lines have been established in most civilised countries. Thus we have the Marie Curie Institute in Paris, the Radium Hemmet in Stockholm and the Radium Institute in London, and to come nearer home, the Memorial Hospital in New York, the radiological institutes in Montreal and Toronto and in our own western provinces of Saskatchewan and Manitoba, all equipped with the best that science has provided in the way of radium and x-ray appliances, and staffed by men highly trained in their respective specialties. In all these places the education of the public on the subject of cancer has been assiduously pursued by emphasizing the fact that cancer if taken in time and adequately treated is curable in the great majority of cases.

Importance of Problem

"Greatest of all public health problems."—Dr. Robb.

Cancer is now second among all causes of death. The mortality is higher than that due to all infectious diseases combined (excluding pulmonary tuberculosis), and has been rapidly increasing during the past ten years. During that time cancer has increased 33% and tuberculosis has decreased 25%. In 1926 there were 7614 deaths from cancer in Canada, and in 1933 10,646—an increase in the death rate from 81 to 100 per 100,000. In 1933 one in every ten deaths was due to cancer. British Columbia is in an even worse situation as it has the highest cancer death rate of all the Canadian provinces. This has increased from 457 in 1924 to 836 in 1934 and there is almost an identical increase in Vancouver itself. There is a similar rise in mortality rates all over the world. The Metropolitan Life statistician thinks that 1933 may be the peak year but this cannot be accurately confirmed for several years to come.

This rise in mortality constitutes the biggest problem facing organized medicine today and is the direct result of our failure to face the situation. Measures now available, if properly applied, would reduce the mortality to less than one-half the present figures.

Cancer differs from all other diseases in that there is no natural cure. There is but one opportunity for cure. This opportunity overlooked or ineffectively seized, the patient is doomed. The patient from the start must have the best possible care—anything less than this is useless. Ewing once said: "There are but two types of cancer organizations—the efficient and the farcical.

The Causes of the High Cancer Mortality

1. *The view that cancer cannot be prevented and is hopeless from the start.* This viewpoint paralyzes all efforts to control the situation and explains many time-wasting and disastrous procedures. Once admit that in a reasonably high percentage of cases skilled treatment will cure cancer but that the opportunity is fleeting, and you are driven inevitably to the provision of an efficient centre, to which patients may be referred as soon as the disease is suspected.

2. One of the greatest difficulties attending the treatment of cancer with any hope or possibility of success has been *the delay, usually prompted by fear, in seeking medical advice.* Not unnaturally, the patient felt that to get a definite diagnosis of cancer was the equivalent of passing a death sentence. Delay simply means that a condition that in its early stage will respond to treatment, has become so extensive that when submitted for expert advice it has become almost hopeless. Even if cancer is a biologic process held to possess mysteries as unfathomable as life itself and even if its cause should never be discovered, there are enough known facts, if properly and intensively applied, to solve the cancer problem.

The American College of Surgeons recently put on record 24,448 five-year cures. These definite cures reported by accepted authorities from all parts of the United States encompass every major organ and tissue of the body. The heart of the cancer problem today is early diagnosis followed by prompt application of now well known and established methods of treatment. For instance, to quote the latest British statistics of cancer of the breast, 90.1% are alive after ten years if the cancer is limited to one breast. That is an early case. In advanced cases 94.4% are dead within ten years. So it rests with ourselves whether the 90% is with the living or the dead.

Looked at from one aspect, cancer is a psychological problem, and it is from this viewpoint that public education can be so valuable in changing the general outlook and in reducing the average time of seeking medical advice from twelve months to a few days. Unnecessary fear has been held up as a bogey of public education, but it is easier to cure a fear than it is to cure a cancer.

3. *Bad Diagnosis and Ineffective Treatment.*

(a) *The General Practitioner.* The average general practitioner does not see more than two cases of cancer in a year. His interests of necessity lie in other directions. His whole instinct is to refrain from diagnosing cancer until he is sure. With his scanty experience of malignancy he may be late in suspecting cancer and still later in reaching a final diagnosis, so that the case is that much more advanced and the chance of successful treatment that much diminished. Even when a diagnosis has been reached, he has not the proper facilities for efficient treatment.

(b) *The Operating Surgeon.* Technical skill in operating does not make a successful cancer surgeon. He must have special training and experience and be familiar with all procedures, surgical and otherwise, available for the treatment of his patient.

(c) *The Cancer Clinic.* Here lies the best hope of the cancer patient for effective treatment. It is therefore imperative that the organization of the cancer clinic shall be the best that can be obtained. It is unreasonable to expect the general practitioner to hand over his cases to a central clinic that falls short of this ideal.

1. The object of any cancer organization must be the lowering of the now increasing death rate by:
   (a) Diminishing the incidence of the disease. Preventive measures are available in many types of cancer and are effective.
   (b) Lowering the case mortality through the media of earlier diagnosis and more effective treatment.
   (c) Every tumour should be made reportable.
2. There is no reason to anticipate any new or revolutionary treatment in the immediate future. The effective application of our present knowledge would reduce the mortality from thirty to fifty per cent of the present figures.
3. A campaign to accomplish this requires:
   (a) Education of the general public.
   (b) The unselfish whole-hearted support and co-operation of the medical profession.

Public Education

1. The aim in public education should be to convey to every adult in the province of British Columbia certain essential facts about cancer, e.g.:
   (a) That the present "hopeless" attitude is not justified by facts and that cancer is often preventable and nearly always curable if treated in time.
   (b) That cancer is often insidious but that certain suggestive signs may easily be recognized.
   (c) That after recognition of these signs the doctor should be consulted *without delay* and that delay may mean death.
   (d) That quacks have nothing to offer and, if nothing worse, simply waste the short time during which cure is possible.
   (e) That periodic health examinations will help to prevent cancer and will reveal the disease in the early curable stage.

(f) That all treatment should not be regarded as useless because palliative measures do not cure hopeless cases.

2. The educational programme would make use of every effective agency, e.g.:
   Lectures illustrated by lantern or moving pictures.
   Newspaper articles and booklets sponsored by a central body.
   Education of teachers and clergy to form centres of information.
   Co-operation of the dental profession.
   Annual Day or Week of concentrated effort.
   Instruction in all educational institutions.
   Use of all organizations—churches, service clubs, extension departments, women's organizations.

The Profession in General

1. Education along the following lines:
   (a) Prevention of cancer:
   Education of community.
   Recognition and treatment of precancerous conditions.
   Treatment of patients to remove all conditions predisposing to cancer.
   (b) Early diagnosis.
   Diagnostic methods.
   Dangers of biopsy and its proper use and value.
   (c) Necessity of transfer of patient to central clinic *immediately*, not after one has made ineffective attempts at treatment.
   N.B.—First therapeutic attack usually decides the fate of the patient. Therefore it must be well thought out and adequate. Only by treatment under the best conditions is the patient's life reasonably protected.
   (d) Necessity for accurate diagnosis. Therefore in any doubt patient should be referred to central clinic. Late diagnosis makes for prolonged and expensive treatment and in the end is too often futile.
   (e) Danger of delay.
2. Co-operation may be secured by:
   (a) Special clinics at cancer clinics.
   (b) Relief from responsibility and care of many cancer patients in the advanced stages.
   (c) A patient saved by proper treatment will remain his patient.

Cancer Clinics—General Considerations

1. The sole guiding principle in organization must be to seek the welfare of the individual patient. No private consideration or professional interest must interfere with this.
2. Should be central. Decentralization is dangerous.
3. Must command the respect of the profession and of the general public. A scientific background is essential. Any suggestion of commercialism should be eliminated.
4. Appointments should be permanent. A staff continually changing is no better qualified than many other men in the province and cannot command their support.
5. Specialism should be encouraged. As far as possible men should be selected whose first interest is cancer. To each a special field should be

assigned and to him all cases in that field should be allotted. Only in this way can specialized skill be developed.

6. The duties of the clinic:
   (a) Diagnosis and treatment of the individual case.
   (b) Preparation of accurate records.
   (c) The following up of every case.
   (d) The dissemination of recent knowledge of cancer to the general profession.
   (e) Later, the carrying on of research.
7. Ideal organization for British Columbia. The following report has been adopted in principle by the Cancer Committee of the British Columbia Medical Association, and has been based on work already completed in other countries.

CANCER INSTITUTE

Objects:

1. The adequate treatment of cancer.
2. The necessary education and publicity.
3. Any research work that may seem desirable.

Organization:

The problem of the surgical treatment of cancer is already solved by the present facilities of surgical hospitals and surgical wards.

The utilization of radiotherapy for cancer is at the present time, throughout the world, the subject of the very keenest interest. Everywhere this problem, which undoubtedly presents the most vital and urgent, perhaps also the most difficult, task in the organization of practical cancer control, is being investigated.

In Canada, as in the majority of other countries, it was private medical practitioners who took up radiotherapy for cancer. Later roentgen and radium treatment was taken up by those hospitals which established facilities for such treatment.

As the need for special training in radiotherapy became evident, the demand grew for physical equipment, standardization and technically trained personnel. The medical faculties of the University Hospitals took the initiative in providing these and establishing Cancer Institutions for the work. These organizations face two main tasks: First the scientific testing and proving of advancing Curie and roentgen therapeutic methods, and secondly the finding of suitable methods and means for efficiently incorporating the same in the whole hospital system in those spheres of tumour therapy where they have been found effective.

The great possibilities which radium and roentgen therapy present can, therefore, be fully developed and utilized only in an independent radiotherapeutic centre where the methods of radiotherapy can be tested and improved under uniform and scientifically trained management. British Columbia presents, in common with the rest of Canada and the world, an increasing cancer morbidity and mortality. It is on the increase—from 457 deaths in 1924 to 811 in 1933 and 836 in 1934 is alarming. On the usually calculated basis of three to four existing active cases to each death, it means about three thousand cancer victims annually, all of which should receive early diagnosis and adequate treatment. On the above basis one thousand, or thirty-three and one-third per cent, require radiation therapy, another one thousand combined surgical and radiation treatment, and the remainder are still purely surgical.

As distances are great, population scattered, special diagnosis, care and

	1930			1931			1932			1933			1934			Total, 5 yrs.		
	M.	F.	Tl.	M.	F.	Tl.	M.	F.	Tl.	M.	F.	Tl.	M.	F.	Tl.	M.	F.	Tl.
Cancer and O.M.T. of the Buccal cavity and pharynx	10	1	11	9	5	14	14	4	18	10	1	11	12	1	13	55	12	67
Cancer and O.M.T. of the digestive tract and peritoneum	95	67	162	92	59	151	94	43	137	132	69	201	113	61	174	526	299	825
Cancer and O.M.T. of the respiratory system	10	6	16	13	9	22	9	6	15	19	11	30	22	10	32	73	42	115
Cancer and other malignant tumours of the uterus		20	20		27	27		15	15		31	31		31	31		124	124
Cancer and O.M.T. of other female genital organs		8	8		6	6		23	23		19	19		13	13		69	69
Cancer and other malignant tumours of the breast		22	22		30	30		33	33		37	37	1	34	35	1	156	157
Cancer and O.M.T. of the male genito-urinary organs	21		21	27		27	27		27	37		37	36		36	148		148
Cancer and other malignant tumours of the skin	3	1	4	4	3	7	8		8	4	2	6	2	1	3	21	7	28
Cancer and O.M.T. of other or unspecified organs	26	17	43	19	19	38	18	13	31	17	19	36	13	6	19	93	74	167
	165	142	307	164	158	322	170	137	307	219	189	408	199	157	356	917	783	1700
Rate per 100,000 of population	128			131			125			165			146			139		

supervision essential, physical equipment expensive and adequately trained personnel few in number, our need then calls for a provincial centre for radiotherapy such as already exists in most of the other provinces in Canada and other countries.

One object of such an institution would be the study, from a scientific and clinical point of view, of the effect of radiation on malignant tumours and of all affections susceptible to radiotherapy. Special stress would be laid when possible on research in telecurie therapy with large quantities of radium and on roentgen therapy with very high tensions.

Such an institution and organization in British Columbia should provide for present needs and looking to the future should be prepared to serve a population of approximately one million.

It would provide:

Radio-therapeutic service including—

1. Building unit of thirty to forty beds.
2. Radium, 2 gms. (minimum); also telecurie therapy, 4 gm. bomb if possible, emanation; radon.
3. Roentgen apparatus.
   3 units of 200 K.V. apparatus (minimum); also provision for apparatus capable of other voltages, both lower and higher.
4. Roentgen diagnostics (one).
5. Physicist. Physical standardization and supervision.
6. Diagnostic and consulting services.
7. Pathological laboratory and post mortem room.
8. Records and secretariat (including library).
9. Social services.

The above would provide, in the light of present medical knowledge and organization, for adequate treatment and research, medical education and publicity and trained personnel, also assist in statistics, records and general publicity and education in co-operation with the Canadian Medical Association Cancer Organization.

Cost:

Radium—2 gms. and accessories	$150,000.00
Telecurie—bomb and emanation plant (radon) not included. Both these are desirable and would be provided for as means and circumstances permit.	
Roentgen—3 therapy units, 1 diagnostic	100,000.00
Building	150,000.00
Endowment—Physicist and research (clinical)	100,000.00
Total	$500,000.00

Above provides for organization building and equipment but not for maintenance or personnel, which latter would be met by:

1. Pay patients.
2. Government assistance and allowance for indigents.
3. Annual public appeal for funds through the Anti-Cancer League, etc.
4. Endowments.

Annual maintenance estimate	150,000.00
	$650,000.00

CANCER

Death Rates in Vancouver from Cancer per 1000.
Total Deaths from All Causes in Various Age Groups.

	0- 9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90 plus	All ages
MALE											
1934—Deaths	1	1	3	3	28	53	57	42	11		199
Rate	12	41	59	46	161	179	195	175	98		148
1933—Deaths	1		2	8	27	55	72	49	5		219
Rate	9		42	116	154	227	244	207	45		165
1932—Deaths	3		1	5	20	38	55	39	9		170
Rate	25		17	66	135	141	201	167	99		129
1931—Deaths			1	7	30	47	43	30	6		164
Rate			13	74	155	192	165	143	76		122
1930—Deaths		1	2	3	20	46	56	26	11		165
Rate		29	29	37	98	169	199	149	132		123
Total 5 yrs. Deaths	5	2	9	26	125	239	283	186	42		917
Total 5 yrs. Rate	9	12	30	68	139	180	202	170	88		137
FEMALE											
1934—Deaths			1	9	37	37	34	31	8		157
Rate			21	196	440	296	193	168	95		184
1933—Deaths			2	10	31	55	48	38	5		189
Rate			39	185	326	380	284	217	60		210
1932—Deaths		2		12	30	33	35	17	8		137
Rate		53		190	390	258	202	93	68		147
1931—Deaths	3	1		7	29	39	36	31	12		158
Rate	31	29		115	281	320	228	199	145		177
1930—Deaths	1	1	1	10	25	40	36	22	5	1	142
Rate	9	34	13	154	266	323	252	148	67	100	162
Total 5 yrs. Deaths	4	4	4	48	152	204	189	139	38	1	783
Total 5 yrs. Rate	9	26	14	166	336	315	229	164	89	15	176
BOTH SEXES											
1934—Deaths	1	1	4	12	65	90	91	73	19		356
Rate	7	22	41	108	252	214	188	172	97		162
1933—Deaths	1		4	18	58	110	120	87	10		408
Rate	5		40	146	215	284	259	211	51		183
1932—Deaths	3	2	1	17	50	71	90	56	17		307
Rate	13	27	9	122	222	179	206	135	72		137
1931—Deaths	3	1	1	14	59	86	79	61	18		322
Rate	13	13	7	90	199	234	189	167	98		144
1930—Deaths	1	2	3	13	45	86	92	48	16	1	307
Rate	4	32	21	90	151	217	217	148	101	63	138
Total 5 yrs. Deaths	9	6	13	74	277	443	472	325	80	1	1700
Total 5 yrs. Rate	8	19	22	110	205	225	212	167	89	9	153

What Is Being Done in Other Countries

Sweden—Sweden began the organized fight against cancer in 1910 with the establishment of its Radiumhemmet in Stockholm and has today what is considered to be the best cancer organization in the world.

France—France also began the fight early and a centre for research and treatment was projected by Regaud before the war but was not completed until 1919. Now in addition to the Curie Institute in Paris there are sixteen provincial centres.

Great Britain—The Imperial Cancer Research Fund was established in 1900, the Medical Research Council in 1915 and the British Empire Cancer Campaign in 1923 which gave the great stimulus to public interest in cancer. There are 12 national radium centres in addition to the five special cancer hospitals in London. There are seven laboratories devoted entirely to cancer research. Great Britain has in all about seventy grammes of radium, partly supplied by public subscription and partly by national and local governments.

United States—The government has taken no special steps to combat cancer. There is an endowed American Society for the Control of Cancer and most of the States have treatment and research centres. A great deal of experimental work is under way with super high voltage x-ray apparatus, notably in New York, Chicago and California.

New Zealand—Is a branch of the British Empire Cancer Fund and a few years ago raised $350,000.00 by public subscription.

Australia—Australia ten years ago raised $650,000.00 by public subscription. The government bought ten grammes of radium and appointed a radium advisor. In addition to this, local efforts were encouraged by grants to each research and treatment fund as it was raised.

At the 1934 International Radiological Congress at Zurich no less than twenty-seven different nations reported efficient programmes of cancer treatment and control and it is significant to note that they are all engaged in practically the same line of endeavour, that is, centralized work, with consultation for diagnosis and treatment, and a three-fold clinical attack with surgery, x-ray and radium.

Salient Points

1. Cancer is curable.
2. Cancer is preventable.
3. Cancer is at first a local disease.
4. Cancer does not attack healthy organs or tissues.
5. Cancer is usually painless.
6. Cancer is not contagious.
8. Second of the causes of death.
9. The importance of periodic health examinations, i.e., preventive medicine.
10. Danger of delay.
11. Every tumour should be reportable.
12. An economic as well as a humanitarian problem. The deaths are an economic loss to the community and the incurable cases a charge on it.
13. British Columbia has the greatest opportunity of improving results because farthest behind.
14. Necessity of centralization of diagnostic and treatment facilities—co-ordination of personnel; i.e., cancer institute.
15. Begin and end with hope. Cancer is curable.

SUGGESTED REFERENCES FOR FURTHER MATERIAL

1. *Cancer*—No. 1 Canadian Public Health Series (obtainable at all book stores).
2. The National Health Review, Vol. 3, April, 1935—"The Cancer Problem." Obtainable free of charge from Dept. of Pensions and National Health, Ottawa.
3. Saskatchewan—Cancer Commission Reports (obtainable from the Government of Saskatchewan).
4. Bulletin of the American Society for the Control of Cancer (obtainable at their headquarters, Rockefeller Center, 6th Ave., New York).
5. Report of Ontario Royal Commission on the Use of Radium and X-Ray in the Treatment of the Sick (obtainable from the Ontario Government).

DEATHS FROM CANCER—PROVINCE OF B. C.

Cause of Death	1929	1930	1931	1932	1933
Buccal cavity	17	21	27	30	25
Stomach and liver	236	249	202	211	246
Peritoneum, intestines, rectum	129	125	127	130	199
Female genital organs	74	73	75	83	84
Breast	62	58	68	83	98
Skin	12	8	6	5	8
Other sites and unspecified	162	174	219	220	183
Totals	692	708	724	762	843
Rate per cent, all deaths	10.82	11.06	11.84	12.39	13.55
Rate per 1000 population	1.04	1.04	1.04	1.08	1.18

The number of deaths from cancer continues to show an increase—a total of 843 for the year 1933, as against 762 in the previous year; the rate being 1.18, as against 1.08 for the year 1932.

ESTIMATION OF SURGICAL RISK

F. N. ROBERTSON, M.D.

Mr. Chairman and Gentlemen:

What I have to say tonight must be considered in the nature of an introduction to some further studies and not as a complete paper.

The statistics so far obtained are not sufficient to justify any definite statements but are of sufficient interest to attract your attention, and I think warrant further investigation.

For some time past I have been trying to find some way to estimate the reserve power of a heart or to estimate its present ability. In testing out these hearts by the simple method to be described, there was found to be a mathematical standard of improvement coinciding with the clinical improvement. Thus as a heart improved under digitalis treatment the improvement could be measured mathematically.

At first this was considered to be true only of heart cases, but it was soon found that in any condition the clinical and mathematical improvements were parallel. The improvement could be mathematically estimated

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and recorded in percentages. Thus an absolute record of the improvement could be made in medical cases and one's judgment or memory need not be relied upon. In anæmia we do not rely upon our memory of the patient's appearance but upon the record of the blood count. The x-ray tells us of improvement in the tuberculous lung. The scales tell us if a baby has gained sufficiently—and so on, with other cases. But for a heart or for the convalescent patient, we usually rely upon our memories, whereas by this method we have a definite record.

Numerous requisitions from the surgical department come in, asking for a medical opinion as to whether a certain patient is in condition to stand an operation. Now the medical staff has no better means of estimating that condition than the surgical staff, except perhaps that they have more practice in listening to hearts. So a medical opinion largely rests upon what can be heard by the stethoscope. This, I think, is not sufficient, as there are other factors to be considered besides a man's heart.

The method to be described takes into consideration not only the state of the heart and blood pressure, but also how these react to exercise, and the effect on the general metabolism.

The method is based upon Reid's formula for estimating the B.M.R. You have all undoubtedly heard of this formula, but for those to whom it is unfamiliar, it is as follows: B.M.R. = .683 (P.R. plus .9 P.P.) minus 71.5; where P.R. is the pulse rate and P.P. the pulse pressure.

I do not intend to enter into any argument as to the accuracy of this procedure nor how it was obtained, but ask you, for the present, to accept it as a rough means for estimating the B.M.R. With regard to its accuracy I would refer you to Rabinowitch's article in the *C.M.A.J.* for February.

Technique: At any hour of the day the M.R. is taken, or, in other words, no fasting period is required. This is not the basal metabolic rate but the metabolic rate at that instant.

The blood pressure is taken while an assistant takes the pulse rate. The cuff of the sphygmomanometer is not removed, but the patient is then asked to raise the other arm, to the full extent without bending the elbow, ten times in approximately ten seconds. Immediately upon completion of this exercise the blood pressure and pulse are taken again before there is any chance for either to fall.

The two metabolic rates are now calculated by the above formula and their differences noted.

e.g. After exercise $\frac{128}{72} - 70 = 10.73\%$

Before exercise $\frac{124}{70} - 68 = 8.13\%$

2.60%

Interpretation: If the patient is in poor condition the difference in metabolic rates is high, but if in good condition the difference is low.

The exercise of lifting the arm ten times in ten seconds has been arbitrarily chosen as it can be used whether the patient is in bed or not. Some other form of exercise might be found just as suitable, but this has seemed very simple and satisfactory, and not too hard upon the patient.

The records I have to present have been taken by different observers and show considerable variation, possibly due to not adhering strictly to the technique. I wish here to express my appreciation for the work and interest taken by these observers.

The cases recorded are divided clinically into surgical risks: poor, fair and good. They were not necessarily surgical cases but just some individuals who, if requiring an operation, would be considered as a good, fair or poor risk, and the nature of the disease was not considered.

Although this has been tried on many patients I have the actual figures for only 40 cases. Of these 40 cases, 25 were males and 15 females. The ages ranged from 16 to 69. The difference in the two metabolic rates ranged from 1% to 24.47% or an average difference of 6.87%. This shows that there is always some elevation of the metabolic rate.

		Difference in Metabolic Rate	
Clinically Good Risks		1%	9.97%
Average for 18 cases	4.21%		
Clinically Fair Risks		4%	7.61%
Average for 6 cases	5.93%		
Clinically Poor Risks		9.62%	24.47%
Average for 16 cases	9.62%		

The diseases in the *good risks* were: pleurisy, mucous colitis, rheumatoid arthritis, chronic appendicitis, duodenal ulcer, pyelitis, rheumatic fever, duodenal ulcer, inguinal hernia, acute cholecystitis, chronic mastitis, fractured femur (2), T.B. knee, fistula in ano, perforated gastric ulcer, peptic ulcer, one case undiagnosed.

The diseases in the *fair risks* were: toxic goitre, acute bronchitis, influenzal pneumonia, diabetes with infection, rheumatoid arthritis and rheumatic fever.

The diseases amongst the *poor risks* were: subacute bacterial endocarditis, coronary thrombosis, coronary sclerosis, carcinoma, psoriasis, pneumonia, chronic myocarditis with decompensation, auricular fibrillation with decompensation, pulmonary aneurism, cardiac decompensation, cerebral hæmorrhage, duodenal ulcer, peptic ulcer, acute appendicitis.

Now it may be argued that practically all these poor risks cases show some cardiovascular disease. Apparently that is true, but it must be remembered that most of these cases were from medical wards.

Also let me point out that the duodenal ulcer case, who by test was the worst of all, showing a difference of 24.47% in his metabolic rate, yet was rated as a good risk clinically. He was sent up for operation but could not stand the anæsthetic and was returned to the ward without operation. He had an electrocardiogram taken which showed a perfectly normal heart except that it was slow. He was to be operated on again and the difference was 24.47%. With a week's rest it fell to 10.93% and he stood the operation well. The next highest case was one of acute appendicitis.

There were 7 cases who rated as higher risks by test than the average good risk, 4.21%, but who were classified as good or fair clinically. These cases have the following diseases:

Influenzal pneumonia	rating	7.11%
Bilateral pyelitis	"	6.83%
Diabetes	"	6.42%
Rheumatoid arthritis	"	5.46%
Rheumatic Fever	"	7.61%
Rheumatic Fever	"	7.61%
Toxic Goitre	"	5.00%

Consider now the disease and not the patient, and in looking over these cases, no one would care to operate or give an anæsthetic to any of them except the case of rheumatoid arthritis, without very careful consideration, and there may have been some other complication present in this particular case.

On the other hand, cases listed as good by this method of estimation

were all considered good surgical risks clinically. In other words, 7 cases out of 40 or 17½% were discovered by this method as being not good surgical risks and perhaps even poor risks, whereas they were passed clinically as being good risks.

I quite realise that 40 cases is too small a number from which to draw conclusions or from which to strike averages, but I would like to see this simple procedure tried out over a period of time or on a given number of cases, as I am convinced that it has merit. I do not suggest that this method should be an attempt to supersede clinical knowledge or intuition. Those only come by long years of experience and after passing through the fires of bitter disappointment many times. It is only something added to our armamentarium, the same as any laboratory proceeding. It does, however, place the patient on a mathematical basis, understandable to the surgeon, anæsthetist and clinician alike, just as would a blood count. Blood may be good, fair or poor, but the count expresses it mathematically so all have a common understanding.

The averages which I have struck—4%, 6% and 9%—may be very far wrong. Nothing but further trial will settle the point. But of one thing I am certain and that is, that if simply lifting the arm ten times disturbs a man's metabolism 10% or more, an anæsthetic or an operation with its attendant shock would upset it still more. Such an individual cannot be considered a very safe surgical risk.

In closing, I wish to point out the absolute uselessness of estimating the B.M.R. or even the use of the machine unless the proper technique is followed and every possible muscle and emotion quieted.

HOSPITAL ECONOMIES

H. S. Stalker, M.D.

(Read before the Osler Club)

I feel that I owe an apology to this Society for presenting the following paper, as it cannot, in any way, be labelled "scientific." However, the last time it was my privilege to read a paper before you, it contained problems incidental to the administration of a large hospital, and as at that time some of your members stated that they would like to hear about additional hospital difficulties, I will try tonight to give you some idea of how the General Hospital has tried to economise during the past few years.

The beginning of this economy campaign was in January, 1933. At that time the Board of Directors had completed the budget for the year. All hospital employees had received a cut in wages ranging from 6% to 20%, but even with this saving in salaries there was an estimated deficit of $165,000. The City Council, a few weeks after our budget was completed, informed us that it would be necessary to pare off another $65,000. At that time, the job appeared almost impossible, as the budget had been prepared very carefully and contained no capital expenditures. The initial steps taken were to call together the heads of all departments, explain the situation to them, and ask them for any suggestions as to where we could save money in their respective departments. It was explained very forcibly to them that a reduction in their own budget for the year was an absolute necessity and that, if they could not effect economies, it might be necessary to replace them with those who could. All of the employees of the hospital, including nurses, were interviewed either individually or collectively, especially those coming in contact with the preparation and serving of food

and the handling of supplies. They were made to understand that their very jobs depended on their being careful and cutting down on hospital costs.

Actual examples were mentioned: e.g., in the nursing department, where nurses were encouraged to use as few sponges and dressings as possible. Most of you will admit that very frequently the outside large dressing does not require changing each time you dress a wound or, if it requires changing, it could be replaced with non-sterile dressings. Every time one of these dressings is saved the hospital saves eight cents, and it does not take long for this to add up to a considerable amount. The nurses were also told to supply only two or three sponges for the sterilization of a wound and to be careful with the amount of iodine, alcohol, etc., used. In the matter of food they were told to be careful, especially in the serving. For example, they were told to place one slice of bread on a patient's tray and to give more if the patient wished it. This way of serving food has resulted in a considerable saving and in some wards is done almost entirely. The patient is asked what he wants from the menu for that particular meal and it is served to him as he wishes. The large heated food wagons make this possible. Where every plate is identical for all patients there is bound to be waste, as everything returned on the tray is, of course, discarded. This discarded food is not a total loss as it is sold to farmers for pig fodder.

As a result of the meeting of the department heads, the following reductions in the various budgets were made:

First, in the laundry department, a saving of $3,822 was effected in the following way: The subordinate staff of the hospital had always enjoyed the privilege of having their personal laundry done at the hospital. This had been a custom dating back to the time when they lived in the hospital. It was discontinued. In addition to this, the linen in the Private Ward Pavilion was reduced in amount by changing the sheets three times a week instead of daily; similarly, in the semi-private wards and public wards the linen change has been reduced unless the condition of the patient is such as to necessitate its being done oftener.

These reductions, besides saving a certain amount of wear and tear on the linen, have allowed us to dispense with three laundry employees at a yearly saving of $2322. The laundry was also able to reduce their vacation relief to a point where they brought in only one or two men to relieve during vacation time, resulting in an annual saving of $1500, bringing their total up to $3922.

In our maternity department, we placed an additional burden on the nursing staff by having them take over some of the duties of the ward maids, which allowed us an annual saving in wages of $1275.

In our physiotherapy department we cut down the staff to the extent of one whole-time technician and half the time of one technician, an annual saving of $1464; the service provided by the hydro department was, of course, curtailed. Quartz light treatments on the wards were discontinued and, as far as possible, no cases are treated in the wards who can possibly be moved to the department.

In the housekeeping department we saved a total of $1774 by closing the patients' clothes room at 6:00 p.m. and dismissing one employee from the linen room. The matrons were removed from the nurses' homes during the mornings. This means that there was no one in charge when the majority of the girls were on duty and necessitated each nurse having a key for her room and being responsible for keeping it locked.

In our carpentry department the following savings were effected: The walls of the corridors and wards, etc., were washed once every two years

instead of annually, an annual saving in wages of $1836. This, we all realized, was a doubtful economy, as the walls become so dirty that we have almost to take the paint off ever to get them clean again. Two gardeners usually employed for six months of each year were deleted from the budget, effecting a saving of $540, and one other employee at $45 per month usually hired for six months of each year was discontinued, saving $270. For the whole department the saving amounted to $2646. It must be remembered here that there was no paint programme going on during that time. The buildings had been left to look after themselves since 1929.

In our orderlies' department it was difficult to see where any saving could be effected. Finally it was decided to reduce the night orderlies' vacation from three weeks to two weeks, an annual saving of $225. In addition to this the chief orderly was told to reduce his budget by $2500. This he accomplished by dropping two orderlies and two cleaners, much to the detriment of the service his department was supplying. The total saving for his department amounted to $2775.

The engineer was forced to operate with one less labourer in the power house, saving $912.

The laboratory and x-ray department both reduced one of their full-time technicians to half time, saving $1200.

In our dietary department we dispensed with one tray girl in the Private Ward Pavilion at $402, and one wagon man was dismissed, saving $621. It was decided that cake should not be supplied for staff lunch, which saved $12 twice a week, amounting to $1248 in a year. This department also guaranteed to save another $1000 in minor economies, a total of $3371.40 for the department. The training school department effected one of the largest savings, approximately $16,000. The student nurses, who had been told of the existing conditions, met and decided amongst themselves that they would reduce their monthly stipend from $6, $8 and $10 per month to $5, $6 and $8, resulting in a saving of $7000. Graduate nurses receiving special training previously had received $10 per month and were cut to $5, saving $300. The second floor of the Private Ward Pavilion, which at that time was empty, was used to house 29 graduate nurses, saving the hospital their rental allowance of $15 per month, amounting to $4200 for the year. Graduation exercises for the Senior Class were held in the King Edward High School, saving the cost of rental of a hall and transportation amounting to $272.

One operating room was closed in each of the Eye, Ear, Nose and Throat department, Main O.R. and the P.W.P. operating room, which freed four senior students to replace four nurses on general duty, saving approximately $3600. Total for the department $16,000.

The interne service was not reduced in any way, but the King Edward School badminton courts usually reserved for them at $75 a season were not obtained.

Twenty-two telephones were removed from various parts of the hospital, saving $580, and causing considerably more work for many of the staff.

The publicity department of the hospital was done away with, saving $600 for the year.

These economies amounted to the sum of $36,500, but they left the hospital short-staffed and in a position where we were not able to supply a complete service; in fact, in some of the departments of the hospital it was found impossible to operate with the reductions. Some of the employees were, at a later date, re-engaged. This was particularly true in the case of

the cleaners and orderlies, and, at times, additional staff has had to be placed in some of the operating rooms. Our hospital, we felt, was not overstaffed, and these reductions, we realized, curtailed our service, but with the financial condition of the city as it was, it was decided that these reductions should go into effect.

The economies thus enumerated resulted in a saving of $36,500. There was still an additional saving of almost $30,000 to be made. This was almost accomplished through our purchasing department and in the wards themselves, and I will try and give some idea as to the work involved in this programme.

Any of the staff who had suggestions as to savings which could be made were invited to bring them to our attention or to the attention of the head of their department, and, in this way, we think almost all of our employees realized the seriousness of the situation and worked with us in an effort to help.

The purchasing department, about this time, put into effect what is called a cost accounting system. By that I mean a system whereby we could check up on each department and could say that we knew exactly what they were spending. This system included everything except repairs and salaries. This was done in the following way. All supplies and goods were received by the various wards and departments on requisition. These requisitions were priced and filed with the purchasing department and totalled at the end of each month, so that when this mass of detailed work was completed, we knew exactly how much they had cost the hospital. Not only that, but we knew how much of each commodity they had used. This showed us that some wards were much more expensive than others of the same class and size, and we promptly got the head nurses together to find out why. Some of them which had been costing us hundreds of dollars more than others did an about-face and began to come down the scale. The only danger was that they might try to be too economical at the expense of the patients in their anxiety to make a good showing. The second month that this statistical sheet was issued there was a drop of $2000 in our expenses and the reduction in expenditure continued downward for three months and then became fairly steady. Four months after the introduction of this system the total cost of supplies for ward use, including all food, surgical supplies, dressings, etc., dropped from $18,940 to $15,000, and there it remained stationary.

Some of this saving was due to the fact that the head nurses, in their anxiety to make a good showing, allowed their ward supplies to become depleted, but even allowing for that it is evident that this system has, from the time of its inception, saved the hospital at least $1000 per month.

It is interesting to watch the progress of some of the wards. For example, the charges against Ward S & T for January 1933 were $709.80, in February $572.98, March $499.50 and April $400. For the remainder of the year it continued at between $400 and $450. This sum includes the cost of all commodities obtained by the wards as follows: printing, stationery, cleaning supplies, crockery, gauze and bandages, linen, surgical instruments and equipment, ice, groceries, meat, fish, poultry, eggs, ham and bacon, butter, bread, milk and cream, fruit, vegetables, toilet sundries, cooked foods and drugs.

The daily requisitions began to exhibit marked changes. Instead of 3 to 5 pounds of butter being ordered each day, one pound or ½ pound is now ordered. Soda crackers, which were ordered by the dozen, are now only ordered for patients requiring them and are usually obtained in half-dozen

lots. Practically everything else has shown the same reduction. Ward S & T is no better or worse than the other wards as they all show a decided reduction in cost, attributable to careful ordering and serving. Eating in the ward kitchens by the staff has been discouraged and orderlies are allowed five minutes during the morning in which they can have a cup of coffee and a piece of bread in their own dining room. Similarly, the nursing staff can obtain afternoon tea in their own dining room. This has resulted in quite a remarkable saving.

In the purchasing department a great many economies have been effected because of different methods of buying, some of which I would like to detail.

Prior to two years ago, we used 225,000 yards of gauze yearly, and since the wards have been definitely trying to cut down on the use of dressings it has dropped to 190,000. In addition to that, we decided to try a lighter stock and it has proven quite satisfactory and at a cost of $1.90 per 100 yards as against $2.25 for the type formerly in use. The saving in the buying and in the economy in the use of the gauze has amounted to $1560.

For our ward dressings we did much the same thing. We used to buy 200 gross of large dressings 24 inches by 10 inches and cut them in two. We now buy them 2 inches narrower and have saved $1200 and, to the best of my knowledge, we have received no complaints because of smaller dressings. We also use 13 gross less of the large dressings than we did formerly, which amounts to over $50.

"Peri" pads are also reduced in width from 5 inches to 4 inches and we use 200 gross a year less than we used before at a saving of $250.

Our cotton we formerly bought in 1-pound rolls at 31c a roll; by buying it in 5-pound rolls we get it for 27c a pound and we have cut the amount used in half. On the cotton we have saved annually $350.

We used to buy our ink in quart bottles at $3.60 per gallon and then we bought it in kegs, filled our own bottles and distributed it to the wards at a considerable saving. We next obtained a formula for making our own ink which now costs us 35c a gallon. The ink is certainly not as good as the product we used to buy, but is giving fair satisfaction.

We had a yearly consumption of 80 gross of pen nibs. Our average price two years ago was $1.60 per gross and was high because in trying to please everyone we bought a variety of nibs. Now we buy two standards, Bank of Montreal and Bank of England, and get them for 50c a gross, saving $88 annually.

Throughout the hospital we use an average of 230,000 paper handkerchiefs per year. The size of these was formerly 7 inches by 7 inches and the cost 60c per 1000. We found out accidentally that we could buy a serviette of the same material 13½ by 13½ for the same money. We therefore bought the latter, cut them two ways in our printing department, which gave us a handkerchief 6¾ inches square for 15c per 1000, representing $1035 saving annually.

In buying soap we find it cheaper to go outside the city. Our annual consumption was 300 gross of 1-oz. bars and the best price we could get in Vancouver was $2.50 per gross. We are now bringing it in from the East at $1.40 per gross, an annual saving of $330.

The hospital uses 144 dozen of robber gloves per year. These, at one time, were obtained from the East at $3.81 per dozen, but we can now obtain just as satisfactory an article made locally for $3.00 per dozen, saving $116.

Our mustard, bought locally through a jobber, cost 43c per pound. By

going direct to the manufacturer we get it for 18c, so that on 1500 pounds there is a saving of $375 during the year.

Our interne uniforms used to be made locally by a manufacturer in random sizes, large, medium and small, at $5 per suit. We now buy material, have it washed and shrunk in our own laundry and when the internes arrive send them to our own tailor for measurement. The suits cost us $2.10 each complete. With 35 internes with 4 suits each, we save during the year $406.

The hospital pen holders used to be rather fancy, with rubber finger grips, and cost us 70c per dozen. We now use a very plain holder at 30c a dozen which, on our annual consumption saves us $15.

Sputum cups were imported, through eastern jobbers, at $5.15 per 1000. We can now obtain them locally at $4 per 1000 and, on our annual consumption of 100,000, we save $115.

The above noted savings have been mentioned merely to show that an actual saving has been accomplished, and do not begin to include all of the economies effected by the purchasing department.

In the surgical supply department the economies practiced have, if anything, shown more ingenuity than elsewhere and some of them deserve mention.

In place of buying five-yard bandages at 36c, 10-yard lengths are now being bought at 46c per dozen. We therefore get our bandages at a much cheaper rate and there are only half as many ends to be wasted.

In the use of rubber gloves in the main wards and the various buildings, the surgical supply department effected a marked saving by taking charge of all the gloves used in the hospital with the exception of those in the operating rooms. These gloves are cleaned, repaired, sterilized and mended in the S.S.R. and are issued to the wards on requisition. In the event that they are not used within two or three days they must be returned to the S.S.R. Formerly, each ward was responsible for the cleaning of its own, with the result that they all had from 12 to 18 pairs of gloves which stood idle sometimes a month without being used, and consequently they often deteriorated very rapidly. The saving here, then, is twofold, as fewer gloves are in general use and they are worn out and not allowed to deteriorate.

In the same way, a saving has been effected by the S.S.R. setting up various types of trays which can be loaned to any ward when necessary; i.e., head tray, dressing tray, douche tray, anæsthetic tray, enema tray, breast tray, hypo tray, etc. The possession of these trays, which are kept constantly ready for use, does away with the necessity of so much equipment on each ward.

A system has been introduced in the Surgical Supply Room whereby doctors wishing to obtain hospital supplies on loan or to use in their private practice are charged a moderate fee. The results have been quite surprising. Saline, distilled water, glucose solutions, etc., were at one time bought from the hospital in large quantities. A charge was made at that time only sufficient to cover the cost of the solution, the idea being that the doctor would return the flask. We found that the flasks were returned very infrequently. The cost to the hospital for this service was considerable. The system practiced by the S.S.R. now is such that a doctor getting a solution from the hospital gets a receipt from the cashier's office which he tenders to the S.S.R. where he receives the material. This receipt is kept until the flask is returned, and if it is not returned they get in touch with the doctor or charge

it up to him. In the same way there is now a charge against the splints, crutches, plaster shears, intravenous sets, etc., which are taken from the hospital. For splints and crutches we make a charge covering the cost of the article and when it is returned a refund is made of all but 25c or 50c. The saving here, especially in the time of our splint man, has been remarkable, as our loss of splints which we used to lend to patients was very high.

Our intravenous sets cost $22.15 for the equipment alone and we charge $5.00 for anyone wishing to use them outside the hospital. This includes two flasks of solution, and when you consider the labour of preparing them, cleaning and sharpening of needles, sterilization, etc., you see the charge is quite moderate. It has resulted in very few of them leaving the hospital, whereas formerly when no charge was made we prepared a considerable number for outside use.

We now insist that nurses who break hospital equipment such as syringes, thermometers, etc., pay for them. This action has reduced our consumption astonishingly. In 1932 we used 30 gross of thermometers, in 1933 15 gross. There has been a corresponding decrease in the breakage of china, to which the same rule applies. The employee is charged just enough to cover the cost of the thermometer, and in the case of china and crockery they are charged 50% of the cost. In 1933 the S.S.D. collected $409 from graduate nurses and $395 from student nurses to cover the cost of breakages. The saving to the hospital, of course, lies not only in the $800 which was recovered but in the fact that if we had not charged for these breakages consumption would probably have been twice what it was.

Up until recently patients were not charged for dressings, but for the last two years if they use more than an average amount of dressings they are assessed for the additional amount. In 1933, in the Main Building, we collected $345, and in the Private Ward Pavilion $1032, a total of almost $1400, for dressings which we formerly included in the daily charge. Our charges for the dressings are moderate and include the actual cost of the materials and the labour of their manufacture. For example, a bag of gauze swabs including 30 pieces costs 25c, 12 pieces of four gauze 35c. A prostatectomy dressing costs $1.00, which includes two packages of four-gauze, two extra large dressings and two large dressings. An extra large dressing costs 8c, an ordinary large dressing 4c. A tin of absorbent swabs, 30 pieces, 20c. Amputation dressings 40c. Perineal dressings cost 1c each. These prices include sterilization. The cost to the hospital of dressings can be clearly shown when I state that our high tension surgical unit cost us $650 and our saving in prostatectomy dressings paid for this machine within a period of two months. The foregoing is only part of the economies effected. The head of the S.S.D. has striven very hard to standardize and economize in the surgical dressings used in the hospital and in her work is sometimes a trifle dogmatic and stubborn, but her energies are so whole-heartedly devoted to the hospital that her shortcomings in this way can be overlooked.

Another type of economy that we have tried to practice in the hospital of late has been that in which capital expenditure has been necessary in order to save money. For example, during 1931 and 1932 the hospital printing cost in the neighbourhood of eight to nine thousand dollars. At the commencement of this year the hospital installed its own printing department in the form of a Multilith and Multigraph which does practically all the printing required in the hospital with the exception of large books and financial statements. This year our printing will cost us not more than $6000, so that inside of two years at the most the machine, which cost originally

$2400, will have been completely paid for and our annual saving in our printing department from then on will be over $1000 a year. In addition to the saving, we have more creative work being asked for from the various departments of the hospital, and are able to change our forms, as conditions require, more cheaply than we could formerly.

Two years ago we bought a sanding machine for refinishing the floors, for which we paid $365, and a power lawn mower for approximately $425. Both of these machines have paid for themselves many times over in saving of labour. The power lawn mower, for example, does the work of four men. In the same way we have been able to do away with overtime in our laundry by buying a new flat ironer at a cost of $12,000. The saving in this case is very apparent. The laundry had been working at its utmost capacity and for the months immediately preceding the purchase of this new equipment we were forced to pay in the neighbourhood of three to four hundred dollars per month to an outside laundry for work that we could not handle. Since buying the new equipment, we are able to do all our laundry and have done away with overtime. It is apparent therefore that this expensive piece of machinery will have paid for itself in a very few years.

With all of the economies practiced, the majority of which I have tried to mention, we were able to save approximately $55,000. This was considered satisfactory, as a definite curtailment in service beyond the safety

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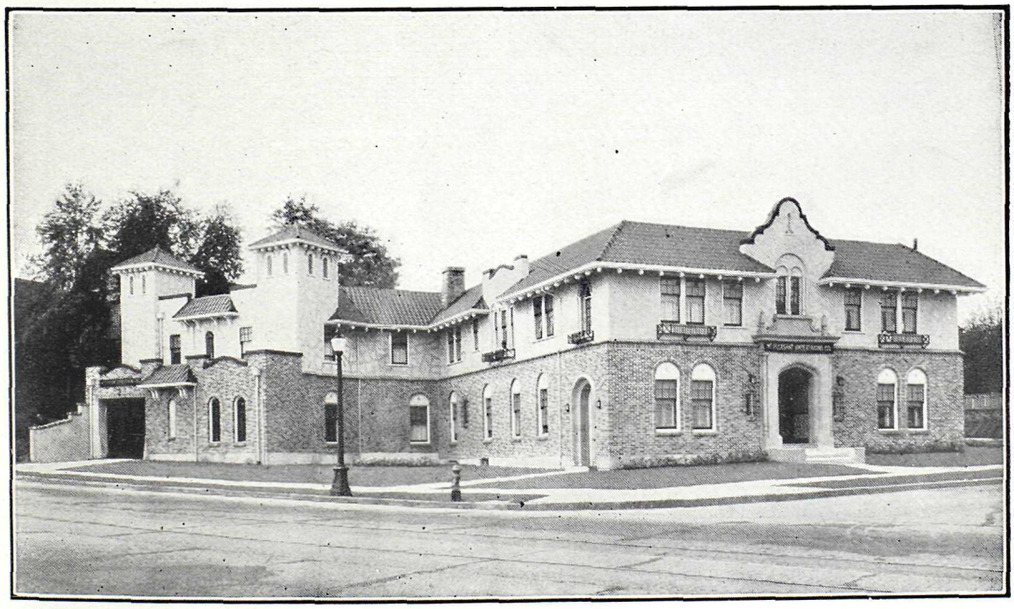

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