THE
BULLETIN

Published By
The Vancouver Medical Association

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Vol. XXV **SEPTEMBER, 1949** **No. 12**

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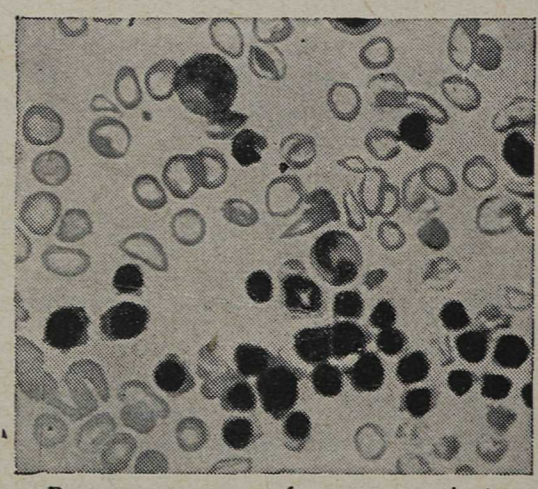

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Programme for the Fifty Second Annual Session

(Fall Session)

AUGUST 30th—SPECIAL GENERAL MEETING—Discussion of "Medical Economics."

OCTOBER 4th—GENERAL MEETING—"Cardiac Radiology," Sir John Parkinson, London, England.

OCTOBER 18th—CLINICAL MEETING—Vancouver General Hospital.

NOVEMBER 1st—GENERAL MEETING—"Medical Economics."

NOVEMBER 15th—CLINICAL MEETING—St. Paul's Hospital.

NOVEMBER—"ANNUAL DINNER" — (date to be announced).

DECEMBER 6th—GENERAL MEETING—"Quid Pro Quo in Medical Education", Dr. M. M. Weaver, Dean, Faculty of Medicine, University of British Columbia.

DECEMBER 20th—CLINICAL MEETING—Shaughnessy Hospital.

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VANCOUVER HEALTH DEPARTMENT

CASES OF COMMUNICABLE DISEASE REPORTED IN THE CITY

STATISTICS — JULY, 1949

Total Population—Estimated	376,000
Chinese Population—Estimated	7,455
Hindu Population—Estimated	275

	April, 1949	May, 1949
	June, 1949 Number	Rate Per 1000 Population
Total deaths	397	12.7
Chinese deaths	21	33.8
Deaths, residents only	366	11.7

BIRTH REGISTRATIONS—Resident sand Non-residents.
(Includes late registrations.)

	June, 1949	
Male	480	
Female	507	
	987	31.5

INFANT MORTALITY—Residents Only:

	June, 1949
Deaths under 1 year of age	18
Death rate per 1000 live births	24.6
Stillbirths	5

CASES OF COMMUNICABLE DISEASES REPORTED IN THE CITY

	Number Rate Per 1,000 Population			
	June, 1949		June, 1948	
	Cases	Deaths	Cases	Deaths
Scarlet Fever	8	0	8	0
Diphtheria	0	0	0	0
Diphtheria Carriers	0	0	0	0
Chicken Pox	118	0	183	0
Measles	93	0	94	0
Rubella	72	0	8	0
Mumps	95	0	5	0
Whooping Cough	0	0	2	0
Typhoid Fever	0	0	0	0
Undulant Fever	0	0	4	0
Poliomyelitis	4	0	3	0
Tuberculosis	60	17	41	11
Erysipelas	3	0	0	0
Meningitis	0	0	0	0
Infectious Jaundice	0	0	0	0
Salmonellosis	5	0	0	0
Salmonellosis Carriers	0	0	0	0
Dysentery	0	0	0	0
Dysentery (Carriers)	0	0	0	0
Tetanus	0	0	0	0
Syphilis	22	2	41	3
Gonorrhœa	175	0	148	0
Cancer (Reportable):				
Resident	81	69	72	70
Non-Resident	28	15	11	11

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The Editor's Page

We are publishing in this issue the notice to the profession of the B. C. Research Institute, which was founded a year ago—and which has recently received a grant from the Canadian Cancer Society, for purposes set forth in the announcement.

We are printing, too, some remarks made on the subject by Dr. M. M. Weaver, Dean of the Medical Faculty of the U.B.C., which are very well worth reading. As one reads his address, one is struck by the far-reaching effects that will issue from this new undertaking in research; its potentialities for positive achievement—in general research, in medical education, in the stimulation of thought, in the encouragement to any one of us who may have a constructive idea, to follow that idea up, and finally in the provision of adequate facilities through the use of which the value of that idea may be fairly and thoroughly tested.

Research is, as Dr. Weaver emphasizes, the very lifeblood of all human enterprise; and without it we cannot hope to make any real progress. The great manufacturing firms and commercial houses know this, and as he points out, "millions and billions" of dollars are spent yearly "in anticipation of commercial applications." Beside this lavish expenditure, the amounts available for medical research often seem pitifully small—but actually pure research can often, like Cinderella, creep in along with her big sisters of commercial research, as we see in the aid given by the big pharmaceutical houses, which, while pursuing their perfectly legitimate and most constructive researches along commercial lines, still give generous aid to the pure researcher. Very often, too, as in the fable, Cinderella carries off the prize in the end.

This Institute is a very great forward step for British Columbia. It is much more than a nucleus—it is, or shortly will be, a practical centre for research, linked up with the medical school, (Dr. Weaver's remarks about this are most stimulating and interesting) and available for work along the most advanced lines. It cannot but be of value to not only British Columbia, but all Canada. And among its provisions is one that is unique, and will provide the greatest encouragement to us all, who follow the practice of medicine. It is that provision which is made for any medical man who may want to carry on a private research, on any project that he can show has merit and promise. As Dr. Weaver reminds us, the day for "garret" research is about over. As we look back on medical history, we see many examples of great work along these lines that was carried out with little or no facilities, as we think of them. We think of the researches of Harvey which revolutionized men's thinking about the circulation—of Jenner's work, which gave us vaccination—of Sir James MacKenzie's work, painfully carried out, on cardiology—the trials conducted, at so much personal risk, by Morton and Simpson, and others, which gave us anæsthetics. All these were magnificent, and stand out as great personal achievements—but how much more easily and quickly they could have done their work, with proper facilities. Where would Banting have been, with all his brilliant vision and ideas, without a laboratory? How far would penicillin have got without the enormous expenditure of money and research effort which were made possible by modern laboratory research methods? And what chance has a busy practitioner of medicine to develop any idea he may have, no matter how worthy of consideration and study it may be, unless he can be afforded proper facilities?

For it is vital that these ideas be encouraged; and that soil and food be provided for their growth. A great many valuable ideas must have been lost in the past, have come to nothing, for lack of this support. It is not only in the big organized research laboratories, necessary as these are, that we shall find the answers to our problems—the cause and cure of cancer, the causes of arterial decay and circulatory failure—the

cure for arthritis, and so on; and a host of other problems, some apparently small as compared to these, though none of us can say what is small, and what is big, in these matters. The guide to the solution of these questions may come from the sudden flash of perception or intuition in the brain of one man—the refusal to take things for granted, which made Fleming ultimately the discoverer of penicillin, one of the greatest boons ever granted to mankind—the eternal curiosity, and craving to know *why*, which, it has been said somewhere, is the main characteristic which distinguishes man from the lower animals—the eternal spirit of adventure. The words of John Masefield apply here, and give encouragement to every one of us, to keep his eyes open, his senses alive, and his mind keen.

". . . Adventure on, for from the littlest clue
Has come the richest worth man ever knew,
The next to lighten all men may be you. . . ."

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BRITISH COLUMBIA MEDICAL RESEARCH INSTITUTE

It is obvious that in any medical centre, research facilities must be available. With this idea in mind, a group of laymen and doctors in 1948 incorporated under the British Columbia Societies Act the British Columbia Medical Research Institute with the following objects:

(a) To carry on research in medical and allied sciences, and to make the results of such research available to the medical profession and such other persons and organizations as may be deemed advisable.

(b) To collaborate with other organizations or persons carrying on similar work to that carried on by this Institute.

(c) To assist students and others in such way as may be deemed advisable to carry on research work in medical and allied sciences.

(d) To assist in the organization of similar Institutes in other parts of the Province.

In July of this year a grant of $50,000 was made to this organization by the B. C. Division of the Canadian Cancer Society for the purpose of enabling the Research Institute to provide quarters in which to carry on research work.

The facilities of this new Research Institute will be open to any doctor having a problem he wishes to study. These projects will be accepted after approval by the Medical Board.

If funds are required for the carrying on of such work they must be secured from one of a number of available sources.

This new Institute will enable doctors interested in research work to find a place to carry out such investigation. The Research Institute will be located at the Vancouver General Hospital and has been assured the sympathetic support of that institution.

The affairs of the Research Institute are under the management of a Board of Trustees consisting of:

President, W. C. Mainwaring; Vice-President, Clarence Wallace; Honorary Treasurer, John Dunsmuir; Honorary Secretary, A. J. Cowan.

Representatives from B. C. Division of the Canadian Cancer Society: R. B. Buckerfield, J. P. Mackenzie.

Representative from Board of Directors of V.G.H.: Norman C. Cull.

The Medical Board is as follows: G. F. Strong, M.D., Chairman; W. H. Hatfield, M.D.; Ross Robertson, M.D.; M. M. Weaver, M.D.; D. H. Williams, M.D.

There will be in addition an Advisory Board appointed from amongst persons who are interested in medical research to serve as a liaison between organizations and individuals carrying on similar work or interested in the work of the Institute.

Since the grant from the B. C. Division of the Canadian Cancer Society has made the establishment of this Research Institute possible, it is natural that emphasis will always be given to Cancer Research. There are at present fifteen projects under consideration by the Medical Board.

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REMARKS OF DR. M. M. WEAVER, DEAN OF THE FACULTY OF MEDICINE OF U.B.C., TO THE B. C. MEDICAL RESEARCH INSTITUTE

It is a valued privilege to be present at this meeting which results from the acceptance by the British Columbia Research Institute of a very generous gift from the British Columbia Cancer Society. This gift will provide much needed facilities for the research programme of the Institute and important benefits will be derived by our community, the Province, and the Dominion as a result.

I have been asked to comment briefly upon the importance of medical research to medical education and to the advancement of medical knowledge. We have ample evidence on every hand of the high regard in which such research is held, including the aspiration of nearly every physician to make some contribution of an original nature to the conquest of disease.

Almost from the birth of the scientific method, private philanthropy has stood ready to help to finance medical research, although the total money available for such puroses has, in the main, been quite inadequate. More recently, the public has shown its willingness to contribute through such channels as the British Columbia Cancer Society. Now governmental agencies throughout this continent will support, with public money, those types of research which promise to contribute to health and general welfare. Because of these various sources of funds, medical research of late has begun to share some of the advantages formerly peculiar to industry where, over the years, millions and billions have been spent on research in anticipation of commercial applications.

It seems to the speaker that special gratification is to be derived from the source of the present funds which are being turned over to the Institute, and a great trust is involved. This money was given by public subscription by individuals who have seen friends and dear ones succumb to that scourge of middle and advanced age—malignant disease. The gifts mark the desire of people in all walks of life that medical science proceed as fast as possible with its attack upon cancer, and its investigation of the causes of other degenerative diseases, such as arteriosclerosis. The Research Institute has been in the minds and hearts of the physicians of this Province for a considerable period. From now on it should occupy the thoughts, as never before, of the citizens of British Columbia.

I trust it will not seem out of place to remark that the laboratories which will be fitted out, the equipment which will be purchased, and the technical staff which will be assembled, will represent but a beginning in what must be a long-range programme. Important medical research is already under way by the members of the Institute and this must be carried on with increasing momentum. To assure this, adequate financial support must be secured on a continuing basis. Only in this way will the results of the research measure up to our expectations and those of the public.

As to the relationship between the British Columbia Medical Research Institute and the Faculty of Medicine, the affiliation will contribute very definitely to medical education in this area. A four-year medical school must have clinical research and other

research in progress at all times. The teaching of medical students requires that the faculty be at least reasonably active in research; without the investigative spirit and a lively interest in the research discoveries of others, the medical teacher soon becomes uninspiring and hopelessly out of date. I should anticipate that with the fine spirit of interest in medical education displayed by founders of the Institute the research mission of our Faculty can be fulfilled to a great extent, and perhaps entirely. While we should not lose sight of the fact that the function of the Institute is to select and carry out research of a highly advanced nature, it is my hope and expectation that the work of the Institute can be integrated with the teaching of the medical students. It is my expectation that the students may be permitted to observe good research facilities and procedure, and that through the Institute they may, in accordance with their abilities and interests, be permitted to participate in the conduct of its various investigations.

The presence and activities of the Institute would strengthen the teaching of the undergraduate in medicine soon to be with us, even if there were not to be the close liaison between the Institute and the Faculty of Medicine which is in prospect. It is difficult to conceive how the research at the Banting Institute could fail to benefit the medical students at the University of Toronto, even if there were no joint staff appointments and no sharing of housing facilities. It is particularly encouraging to the speaker, who will have certain responsibilities in getting a research programme started in the Faculty of Medicine, while at the same time being engaged in assembling a faculty in the fundamental sciences and establishing the curriculum, that through the presence of a vital B. C. Medical Research Institute, and its close affiliation with the Medical School, basic and clinical research will be advancing strongly well before the day for beginning clinical teaching arrives.

One final observation about the important role to be fulfilled by the B. C. Medical Research Institute may be in order. This is the matter of perpetuating itself and its work, including the quality of its investigators. The research experts of the future must be developed in an atmosphere of high-quality research. Their abilities have to be recognized at a relatively early date and they must be identified within the much greater number of young men and women studying medicine who have at least some interest to become medical scientists.

Having had intimate contact with medical students for a good many years, the speaker is sure that our resources in young people who could make valuable contributions in research have only begun to be tapped. Contrary to the impression in some quarters that medical students want to proceed through medical school as rapidly as possible, without too much concern as to how medical knowledge was arrived at, it has been my experience that from one-half to three-quarters of present-day medical students would welcome the opportunity for at least some training in research. Within this group are a certain few who have the potential for great things in research. They are those who have ideas, and the energy to satisfy their curiosity about the unknown if given the chance to explore it. The Institute will contribute to its own greatness and secure its own future in the scientific world as it helps to recognize these gifted men and women and train them. One of the world renowned medical scientists in Canada is reported to have said that if one individual with real research ability from among all members of a class graduating from medical school, is started upon a career in science, the effort and money expended in educating the entire class has been amply justified.

Apropos of the work of the Institute, there inevitably will come the day when certain of its research staff, possessed with ideas and the desire to continue on with the problems they have undertaken, will be confronted with major personal economic needs which may threaten the continuity of their research. Insufficient attention has been paid to these situations in recent years. To show you what the speaker has in mind—the Markle Foundation in New York has a substantial endowment, the returns from which have been available for some time to support medical research. Recently in casting about to determine what direction should be taken in the future to assure proper

returns from the Foundation's philanthropy, it was decided to subsidize a number of young research workers each year. These fellowships are available to medical graduates who have completed their formal training, who have demonstrated outstanding research ability and who are confronted with the choice of either leaving their research centre to enter private practice and support their families, or staying on with their work and suffer the financial consequences. The $5,000 fellowships which are being provided by the Foundation will make it possible for the holders to continue their research, develop as medical teachers, and, eventually, as their staff appointments become decently remunerative, continue permanently in research careers. It is the speaker's hope that our own young investigators may one day justify such recognition of their abilities.

These remarks may sound as though I am interested principally in the career man in research, and, of course, such investigators are destined to be found in our medical centres in increasing numbers. They will devote their full time and their entire careers to research. But there is another type of medical research worker, who is just as admirable certainly, but who must have his research for an avocation, rather than for his vocation. One of the best persons from among my acquaintances who exemplifies this group is Dr. Prœtz in St. Louis. I have admired his work in research on the ciliary activity of the mucous membranes of the nose for many years. As an extremely busy otolaryngologist and teacher on the faculty of Washington University Medical School, Dr. Prœtz has never been blessed with strictly leisure time. However, as he once recounted, in driving back and forth between his home, his office, and the various hospitals where he has responsibilities, it was possible for him to visualize an extremely elaborate photographic mechanism for taking moving pictures of the nasal cilia. With apparatus installed on a deep concrete foundation in his basement he was able to demonstrate, to the benefit of the whole medical world, the harmful effects of mercurial antiseptics on ciliary activity, the denuding action of bacterial toxins on nasal membranes, and to suggest those conservative measures in the hygiene of the nose which have revolutionized our treatment of upper respiratory infections. Any number of like contributions could be assembled from the history of Canadian medicine. It is this continuous and unremitting interest in medical research by physicians in private practice which the B. C. Medical Research Institute seeks to encourage.

One requirement for top-level research is, of course, adequate facilities. The days of garret research are past. It need not be re-emphasized that in this day and age it is most unlikely that the performance of a single dissection, or the setting up of some simply conceived physiological experiment will result in an important medical discovery. One dare not be too categoric in this assertion—witness the discovery of penicillin. But, in general, the greatest medical contributions are coming from properly equipped laboratories which are adequately staffed with technical assistants. Even if *ideas* do not have to wait upon the availability of such facilities, the results of the ideas may never see the light of day if there is not the necessary equipment and the necessary trained staff for the performance of the required experiments. In other words, the research man of today, be he full-time in this field, or able to spend only part of his time upon research, must have space, equipment and personnel.

To comment briefly upon the local scene and to pay tribute to our colleagues who have an interest in conducting medical research, it seems to the speaker unlikely that there is any community in Canada where, within a similar sized group of professional men, there is a greater number of highly trained physicians with research experience. They have congregated from throughout the Dominion and many have done research in the States. It is true that until recently the major emphasis within the Province has been upon supplying a very high quality of clinical medicine to the Province. The doctors of this community have been tireless in searching out the latest medical advances for application here at home. I am not overlooking the fact that important medical research has been carried on as well. However, there has been the severe handicap which results from the lack of a medical school and, as one looks about the continent, he is

impressed with the fact that medical men have found it extremely difficult to proceed with research programmes where they are removed from medical schools. One of the most important contributions which the Faculty of Medicine can make to this Province will be to provide that stimulus, common interest, and correlation which a broad research programme requires.

Probably full advantage has not been taken, up to this point, of the presence of the University of British Columbia at Point Grey, where medical research was being planned. For this there have been a number of reasons no doubt, including that of physical distance. However, it is the characteristic of research as we wish to have it develop, that advantage shall be taken of what the chemist, the physicist, and the zoologist have to contribute. It is my expectation that in the days ahead, more and more joint projects will be arranged, utilizing the combined facilities and thinking of the staff at Point Grey and the Institute.

Wherever the instruction of the medical students is carried on, and for the present this will be divided between the University campus and the Vancouver General Hospital and other hospitals of this area, there will be great need for the sincere and close co-operation between the research staff working here at the Institute and those members of the Faculty of Medicine who will do their work at the University. Such co-operation I know will be given with good-will and enthusiasm.

This community and its leaders are to be congratulated upon the spirit which has prompted the making of this gift. The money will be well spent. I am sure that everyone concerned with the choice of research problems and the review of the results will have a high sense of obligation to conducting the programme of the Institute. The results of the research will be important, not alone to the citizens of the Province and the Dominion, but to the entire world.

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LIBRARY NOTES

Hours: Monday, Wednesday and Friday ..... 9.00 a.m.—9.30 p.m.
Tuesday and Thursday ..... 9.00 a.m.—5.00 p.m.
Saturday ..... 9.00 a.m.—1.00 p.m.

Recent Accessions

A Primer of Electrocardiography by Burch, G. E. and Winsor, T., 2nd edition (revised), 1949.

Advances in Pædiatrics—vols. 2 and 3—Levine, S. L. (Chief Editor).

American Medical Association, Transactions of the Section on Ophthalmology, 96th Annual Session, June, 1947.

American Urological Association, Western Section, Transactions, 1948.

Clinical Practice in Infectious Diseases by Harries, E. H. R., and Mitman, M., 3rd edition, 1947.

Collected Papers of the Mayo Clinic and the Mayo Foundation, v. 40, 1948—Hewitt, R. M. (editor).

Electrocardiography by Katz, L. N., 2nd edition, reprinted, 1947.

Medical Classics, vols. 1, 3, 4 and 5, 1936-1941—collected works by various authors compiled by Emerson Crosby Kelly (Historical and Ultra-Scientific Fund).

Medical Clinics of North America, Symposium on Gastro-Intestinal Conditions, Mayo Clinic Number, July, 1949.

New and Non-official Remedies, 1949—Council on Pharmacy and Chemistry of the American Medical Association.

Ophthalmological Society of the United Kingdom, Transactions, v. 67, 1947.

Surgical Clinics of North America, Symposium on Surgical Technique, Lahey Clinic Number, June, 1949.

Skin Diseases in General Practice by F. R. Bettley, 1949 (Gift).
The Elephant Man and Other Reminiscences by Sir Frederick Treves, 1928 (Historical and Ultra-Scientific Fund).
Understand Your Diabetics by J. W. G. Caldwell, 1949 (Gift).

Among the recent accessions listed above are four of the five volumes of "Medical Classics" which have been acquired through the Historical and Ultra-Scientific Fund, but, unfortunately, volume 2 is unobtainable. These volumes contain reprints of historical papers, among them being some by Sir James Paget, Oliver Wendell Holmes, Sir Charles Bell, W. S. Halstead, John Hunter, Sir William Osler, Thomas Sydenham and William Henry Welch. Before each set of articles, there is an introduction and portrait of the author, a list of important dates in his life and finally, a bibliography. The Library has been fortunate in obtaining these volumes, even though the set is incomplete, and they can be borrowed by members, on application to the Librarian.

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BRITISH COLUMBIA TUBERCULOSIS INSTITUTE

Corner of Willow and Tenth Avenue, Vancouver, B. C.

Some time ago, your Editor had the opportunity of seeing through this magnificent new Institute, the latest addition to the resources of the Provincial Clinic for Diseases of the Chest. Dr. W. H. Hatfield, the Medical Director of the Division, was good enough to conduct me through the entire building and explain its workings. It is altogether too good a thing to be allowed to hide its light under any bushel: it is one of the great achievements of this Division, and is a major asset to the Province as a whole. Listening to Dr. Hatfield one realizes that there is nothing quite like it anywhere in Canada, or indeed in North America, and one felt that a brief account of it might be of great interest to the profession at large, the members of which will find it well worth their while to make a visit for themselves to this Institute.

The history of this institution is briefly as follows:

Two years ago Dr. Hatfield and his associates in Diseases of the Chest felt themselves to be at a point where, if British Columbia was to keep up with modern trends and the present state of therapy of chest diseases, there must be an expansion of facilities along two lines—educational facilities and technical facilities. A special type of building was urgently necessary—one designed to meet both these needs. We shall see later how the new building fills this requirement.

The Provincial Government was first approached—but felt itself unable at present to take any part in providing this building. So Dr. Hatfield went to the B. C. Tuberculosis Society and stated his case—putting his cards on the table, and asking them what they could do about it. The B. C. Tuberculosis Society was greatly impressed, and at once adopted this as a major project. For those few people who do not know this Society very well, it may be stated that this is the Society which looks after Christmas Seal collections, and besides this does a large amount of work in matters of rehabilitation, social service and so on. It has twenty-two sub-committees in British Columbia, one in each of twenty-two towns or cities. A member of each sub-committee is appointed to a Central Board, which is thus composed of twenty-two members: all lay men and women. There are no doctors on this Board—but there is a medical advisory committee in close touch with it, and it was to this committee that the board turned for advice as to what form the project should take. The present building is the concrete expression of the suggestions of the advisory committee, and represents many years of thought and planning.

But there was one drawback—they had not the money to build this. Their chief, if not only source of income, is the sale of Christmas Seals—and judging by their yearly collections, they were two years' collections behind the sum they must have to complete

the building. So they went to the bank. That capitalistic institution listened to their tale, and agreed to lend them the money, being actuated thereto by, first, the realization of the great value of such a project; secondly, faith in the work of the B. C. Tuberculosis Society and its value, and thirdly, confidence that the people of British Columbia would buy enough Christmas Seals to repay the loan. Things like this, we feel, are a better answer to the ravings of the socialist than any amount of argument. It will take two campaigns to do this, but while the action of the bank cannot well be defended on the score of logic, it is an expression of humanitarianism and confidence in human nature that reflects a very heart-warming light on the business men who made it.

So this building costing $440,000 was built, and there was no waste of time about it. A good many British Columbia people will owe their lives and health to the fact that two years' time has been saved.

But there were equipment and furnishings yet to be provided, another Dominion Grant of $69,000 under the new Federal Health Plan was of very great assistance in making this provision. And now the B. C. Tuberculosis Society had a building fully equipped — and beautifully equipped — all ready to go to work — at a cost of over $500,000—not one cent of which did the Province of British Columbia pay—yet the B. C. Tuberculosis Society turned this building over fully furnished and equipped from basement to roof, to the Provincial Government of British Columbia, so that now British Columbia has, free gratis, probably the most complete and most thoroughly equipped unit of its kind in North America.

The new building is given up entirely to education of nurses and medical personnel, to advanced diagnostic methods and social service work, and to chest surgery of an advanced nature. There are no treatment beds in the building. The old building which houses the diagnostic and X-ray units and the beds for active treatment of T.B. is undergoing considerable changes. The Social Service Department occupies a large part of the ground floor. The Chest Disease Division of the B. C. Health Department is unique in two particulars. It gives special assistance, financially and otherwise, to patients who are under treatment for T.B. No other similar institution in North America does this: and this activity is a very great contribution to the peace of mind and well-being of those who come within its purview—both patients and families benefit thereby.

Another feature, unique to British Columbia, is that every student nurse in every British Columbia hospital and training school must take a course with the B. C. Tuberculosis Division. This is mandatory. There are several full-time instructors, with Mrs. L. Kelly at their head. Lecture-rooms are provided, regular lectures, operating room and bedside attendance, are all arranged for the students.

Work is now proceeding on the new building being erected on 59th Avenue, and when this is completed, further changes will be made in the set-up, whereby the buildings at Tenth Avenue and Willow will be used for central control, for research, and for advanced work in treatment, surgical and otherwise. Beds will be removed to the new buildings, and there will be no active beds at the older building.

When one considers that people come in for X-ray diagnosis at the rate of six thousand a week, one can see how greatly a better arrangement will facilitate the work.

Two other features of the building are part of its educational aspect. First, the Library, open to hospital internes and staff, with a most luxurious reading-room, with a list of seventy periodicals at their disposal, and an excellent library and stack adjacent. The plans are made to enlarge this considerably. It will be known as the Centre Library, and will serve the Vancouver General Hospital, T.B. Control, V.D. Control and the B. C. Cancer Institute—though its books and publications are not confined to these, but include the best in every branch of medicine. There is a full-time librarian, a fully-trained member of the craft—Miss Dickinson by name.

The other feature is the auditorium, with its 300 seats, modern to the last degree, with a sloping ramp down which patients can be wheeled in their beds for clinical lectures. Here clinics and lectures are held. In connection with this is a projection

room, of a type equal to the best in the best movie theatre in the city, where any size and kind of film, with or without sound track, can be shown.

This auditorium is also used for patient entertainment: there is a piano, and a choral society composed of members of the staff, with its own conductor and choirmaster.

We have kept the best wine to the end, however. This is the surgical side of the plant. It occupies two floors, and embodies a great many ideas which mean unusual efficiency, both from a technical and an educational aspect. To begin with, the operating suites are a pleasure to look at. There are no projections, no radiators or registers —the building is air-conditioned from top to bottom, and one notices the absence of hospital smells, and the freshness of the air. There are no windows in the operating rooms. Lighting is designed, not merely provided. In the main operating room, an X-ray built into the wall, with its attendant dark-room, provides immediate X-rays when needed, without a litter of cables and carriers.

Bronchoscopy is provided for in a suite of rooms and one feature, the Bi-Plane Fluoroscope, in a room of its own, gives definite localization of foreign bodies, etc.—in two planes—and makes it possible for our surgeons to do work that formerly had to be sent to the Jackson Clinic in Philadelphia. There is now virtually no chest surgery that cannot be done in this Vancouver institution.

Students, internes, etc., can watch operations closely through overhead windows placed above the operating rooms—and through an inter-communication system the surgeon can give clinical instruction and answer questions through impermeable glass.

It goes without saying that all the accessory services of an operating room are of the very latest and best design. Sterilization of instruments, dressings, etc.: is carried on on a continuous line from the service rooms to the operating room proper: and there is no handling between. The equipment is complete to the last Allis forceps—anæsthesia receives special attention. Dr. Harrison informs me that the whole set-up represents three or four years of careful planning by the surgeons and medical staff who work in this building—and their wishes and advice have been followed in every detail by the designers and builders of the Clinic.

Already this Clinic building has attracted continent-wide attention: visitors arrive constantly from all parts of North America, and are quite loud in their admiration and approval. Such an authority as Dr. O. T. Clagett, who visited Vancouver lately and addressed the Vancouver Medical Association, gave it as his considered opinion that there was nothing to surpass it in North America.

This is a matter of great pride, of course, to British Columbia—not only to its medical men and those who specifically work in it, but to all the citizens of British Columbia. It reflects the greatest credit on those who planned and carried it through: Dr. W. H. Hatfield, who was the prime mover in the scheme—the bank that acted with such a wise and prudent foresight—the medical advisory committee that worked out such admirable plans of construction and equipment, and most of all, the B. C. Tuberculosis Society, whose self-denying work of so many years has made it possible to provide the money which was so urgently needed, and without which it would have taken many years to realize this noble conception. In future years, not only at Christmas, when we buy Seals, and should buy more than ever, but throughout the year, this Society should receive ever-increasing support from every one of us—for it has proved its case: not only in the erection of this building, its latest and perhaps greatest achievement, but throughout the many years of its existence, in the vast amount of constructive work it has accomplished year by year, for so long a time.

St. Paul's Hospital

ACUTE LARYNGOTRACHEOBRONCHITIS

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I consider this to be the outstanding emergency condition of all respiratory infections in infants and children.

Acute Laryngotracheobronchitis is a descriptive pathologic term for a disease of varied bacterial etiology.[1] Despite this varied etiology the symptom complex generally fits into a definite pattern because the symptoms are produced by inflammation of, or obstruction of, one or more of the breathing passages. The term is in some ways a diagnosis of convenience to describe a group of cases presenting the same initial clinical picture but it is often inaccurate when applied in detail to any individual case in the group.

Whilst accurately described in 1823, observations on it seem lacking until the'80's with continued reports, but it is only in the last decade or so that the symptom complex has been more generally recognized and reported upon and the term almost universally used. Epidemics of it are reported. An accurate incidence of the condition is lacking as the diagnosis is hiddden under a variety of common synonyms and this must also account for the paucity of reported cases locally. On this account there are very few larger series reported and so wide based statistics are lacking, but two series make available certain figures. One series is from the Sick Children's Hospital[2], Toronto, of 549 cases over a 19-year period, which I was fortunate to hear on its original presentation; the other is, in contrast, a short period—one year, 1947—of an epidemic in Texas[3], one physician reporting 38 cases. As to Vancouver, from 1944 to 1948 the Vancouver General Hospital reports 11 cases, St. Paul's Hospital 7 cases, while, on the other hand, the Children's Hospital reports 11 cases in only the past 15 months.

With infection involving in a general way the areas from which it takes its name, it is accompanied by fever, oedema of the larynx and subglottic region, formation of thick, sticky, gummy secretions which partially or totally occlude the airways and which, if unrelieved, lead to toxaemia, exhaustion and death. It is predominantly a disease of infancy and early childhood, and is rarely seen in adult life. There are sound reasons for this: the infant's larynx is peculiarly susceptible to reflex spasm, its structure is much less rigid, and therefore collapses more easily—inflammatory oedema of the mucous membrane is much greater in relation to the diameter of the lumen than in the adult larynx and the airway is encroached upon to a greater degree. The susceptibility of infants to upper respiratory infections plus a definite role.

In the Toronto series, 69% were under 2 years of age, and only 5% were over 6 years. The greater predominance is in males. 87% of all deaths were in children under 4 years. Mortality rate has been gradually improved during the last twenty years with the new era of treatment, dropping from 75% to 14%—in fact, in the peak year 1944 with 55 cases it dropped to 9%. The seasonal incidence is, as in all respiratory infections, 70% in the winter and spring months.

Now what about the organisms and the resultant pathological changes that bring about this symptom complex? The diversity of findings is no doubt due to the fact that different organisms predominate in certain epidemics and in certain years. From a bacteriological viewpoint it would seem logical to classify the cases into three main groups: virus infections, bacterial infections and primary virus with secondary bacterial infection. Streptococcus haemolyticus, Staphylococcus aureus and Pneumococcus are the predominant bacterial groups with Streptococcus viridans and H. Influenza type B also

present, but there are marked variations in various series. The mortality rate in relation to invading organisms[2] in the Toronto series runs higher in pneumococci 66%, Staphylococcus aureus 58%, generally the mixed infections being lower 50%, but the combination of Staphylococcus hæmolyticus and Staphylococcus aureus ran to 66%, H. Influenza 100% (in the years 40-55 pre-Streptomycin). Suspected virus cases, based on lack of culture growth and clinical and laboratory picture, show mortality nil.

A recent observer[4] reports a classification of the condition based on the predilection of certain organisms for certain anatomical structures. Other observers have given consideration to this but no definite conclusions are as yet forthcoming.

For the purposes of this discussion it will be considered that the diagnosis of laryngeal diphtheria with which it is most likely to be confused has been eliminated or, if there has been doubt, adequate doses of diphtheria antitoxin have been given. Also is it assumed that foreign bodies are not present.

Viewing the condition as a localization of an upper respiratory infection, its onset will likely be preceded by the usual symptoms of such a condition although it is emphasized that these may be extremely mild. Then comes the onset, sudden in 75% of the cases, with a brassy cough and pyrexia of varying degree, accompanied by symptoms of laryngeal obstruction, croupiness, hoarseness, inspiratory stridor and an expiratory wheeze. These symptoms are due to subglottic oedema, sometimes to supraglottic oedema. Unless the vocal cords are involved there may be no hoarseness.

These early symptoms may lead to confusion with a simple catarrhal laryngitis or spasmodic croup particularly if it is not associated with a fever although cases are reported to have been afebrile in this early stage. If, however, palliative measures fail to relieve these early symptoms the more serious diagnosis has to be immediately considered.

With the advent of increasing dyspnoea and restlessness, increasing fever and cyanosis, the diagnosis of acute Laryngotracheobronchitis becomes obvious. Increasing dyspnoea is shown by a sharp inspiratory stridor with marked retraction at the suprasternal, supraclavicular and intercostal spaces and at the epigastrium. Increasing restlessness is evidenced by the infant in constant motion whether in bed or in the arms of the mother, the head held in extension with mouth open fighting for air. The course of the disease is unpredictable—many recover spontaneously in a few days while others progress until they present an alarming picture of respiratory obstruction. This increasing dyspnoea, restlessness and cyanosis are the danger signals and demand establishment of adequate airways before exhaustion occurs. When exhaustion sets in, cyanosis is replaced by an ashen color and the infant becomes ominously quiet as contrasted with the extreme restlessness previously present. Any chance for recovery is likely past by this time.

There is a definite relationship between the degree of recession of soft structures and the situation of the obstruction, the greater the indrawing the higher up in the respiratory tract is the obstruction. There may be marked hyperpyrexia; the Toronto series[2] reports temperatures of over 106° in 42 cases, i.e. 8% of the series. Of these 42 cases, 37 died—a mortality rate of almost 90%, while in 38 cases with slightly lower temperatures of between 105° and 106° only 14 or 40% died. These high fevers are attributed to overwhelming toxaemia but anoxia is to some extent responsible. Recently a postmortem was seen on a ten month old baby presumed to be a case of thymus death. It had a Laryngotracheobronchitis and did not die of obstruction but from an overwhelming streptococcic infection, which bears out the toxaemia.

As the name implies, Acute Lymphotracheobronchitis is an acute inflammatory process involving these three structures. There may be merely simple catarrhal inflammation of the laryngeal mucosa, or again, inflammatory oedema of the laryngeal mucosa with or without muco-purulent exudate, in about 66%. Inflammation and oedema of the subglottic regions are responsible for most of the symptoms of laryngeal obstruction. Then comes the group involving the trachea and bronchi—about 36%—with

thick *ropy, gummy* and *tenacious* secretion filling up the bronchi and producting obstruction. Cross sections show complete obstruction of the bronchi. Further consideration is merited of this latter condition.

In this there is destruction of the cilia and epithelium[5 6] of the tracheo-bronchial tree. A metamorphosis of the ciliated epithelium takes place changing it to a secretory epithelium. The original ciliated columnar cells become goblet cells devoid of cilia. The escalator function of the mucosa is gone, the mucus accumulates until air passageways fill because there are no cilia to move it, and further aggravation for the patient occurs as the mucinous mass remains attached to the interior of myriads of epithelial cells. Mucous plugs are thus anchored to the bronchial walls—hence the ineffectiveness of cough—and asphyxiation results. The ciliary loss occurs very early—possibly within 24 to 36 hours. Normally viscid secretion is readily carried up a vertical surface by ciliary action more so than a more fluid one. The mucous plugs also readily produce atelectasis which is far commoner than bronchopneumonia for which it may be mistaken. In the same manner as in acute rhinitis—cilia being destroyed—the secretion drains through the nose by gravity—so it may if fluid enough drain by gravity into the lower respiratory tract.

With a clinical picture of blockage of airways and extensive pathological change of areas covered by Nose and Throat Specialists, why are pædiatricians herein concerned? It was not always so.

There have been two periods of treatment. The pre-sulphonamide-antibiotic era was the surgical or laryngological period. Because of the overwhelming seriousness of the obstructive symptoms the disease was looked upon as primarily belonging to the realm of the laryngologist. It means constant attention on his part to relieve recurring obstruction low down in the respiratory tract. Supportive treatment was essential but given secondary place. Then the new era came in, about 1938, with the use of chemotherapy later fortified with the antibiotics in which supportive and medical treatment came foremost—but it is emphasized that the laryngoscope and the bronchoscope must be part of the therapeutic picture.

What then is to be done to combat and overcome the pathological picture just presented?

The treatment of acute laryngotracheobronchitis is based on an understanding of the etiology and pathogenesis of the disease. Thick secretions must be thinned and infectious agents combated, and constant vigilance maintained for evidence of respiratory obstruction. In few other situations is constant intelligent nursing so important.

Whilst each case of Upper Respiratory Infection holds the potentiality of becoming acute laryngotracheobronchitis, on a practical basis it is when laryngitis becomes present with a marked increase in its severity that steps must immediately be taken to be prepared for and to combat the development of the more serious condition. What therapeutic measures have we at our disposal to accomplish this? The liquefication of the sputum is of paramount importance and may be aided in several ways. The function of expectorants is to liquefy sputum[8]. The expectorant drugs: ammonium chloride, potassium iodide, fluid extract of senega, fluid extract of ipecac and emetine hydrochloride all equally liquefy sputum consistently, there being no difference in their efficacy. Inhalations of steam liquefy sputum more efficiently than do the expectorant drugs—this being effected by great reduction in viscosity and content of organic and inorganic substance is reduced. It is a simple dilution. Inhalations of CO_2 serve as the most efficient expectorant through increase in respiratory rate, liquefication of sputum, increase in absorption of sputum and stimulation of cough reflex. Therefore it would appear that the most efficient therapeutic regime initiated to clear the bronchial tree of secretions would be a combination of inhalations of CO_2 and steam and administration of expectorant drugs. On the other hand Oxygen, so frequently essential, has to be regarded as an anti-expectorant, increasing very markedly the viscosity of the sputum by increasing the content of solid substances, sputum becoming thicker and more adherent. This

undesirable influence cannot be compensated by giving it with 5% CO_2—only the addition of moisture to a mixture of these two gases will equalize the drying effect of Oxygen.

The first and readiest practical step is to place the child in an atmosphere saturated with moisture. This may be a specially constructed steam room in which the water should literally drip from the top of the ceiling or a steam tent equally saturated, in this latter two or three steam kettles being needed. The temperature will likely go to 90° to 95°. This has perhaps some comparative disadvantages, the heat being oppressive and enervating, making the child restless and, if in a tent, desirous of getting out; it also may tend to increase the inflammatory oedema. Nevertheless it is very efficacious and represents a ready and efficient method. Cool moist air—cold vapour—is preferable if available. It is more comfortable and may assist in reducing mucosal oedema. This is accomplished by the use of electrical humidifiers[9] or other apparatus[10] and a humidity of 95% at a temperature of 68° to 70° may be maintained.

If oxygen is needed it must therefore be employed in conjunction with some method producing high humidity. Mechanical vaporizers may be used in conjunction with an oxygen tent, improvised schemes may be set up with nebulizers, distilled water and an oxygen tank as the source of nebulizing force. Steam has been run into the oxygen tent by pipe or rubber hose. It is cumbersome, unsatisfactory and dangerous but it has been life saving. Moist cloths suspended in the partially filled ice compartment of an oxygen tent and moistened frequently provide sufficient moisture to maintain humidity at 70% to 80% but a higher humidity is advisable. A steam room gives the high humidity. By means of additional apparatus 5% CO_2 may also be introduced but this must be clinically very judiciously used.

The child should therefore be placed in a moisture-saturated atmosphere with oxygen added if needed for cyanosis and perhaps, judiciously, CO_2. An expectorant may be given, 5 drops of saturated solution of Sodium or Potassium Iodide to a child 2 years of age, three times a day, and 3 drops to a one year old. The question has to be considered, though, as to whether or not enough advantage in liquefying is gained to offset possible nausea from this or other expectorants. To combat the infection appropriate chemotherapy or antibiotic therapy should be commenced at once without waiting for bacterial confirmation. The organisms most likely present respond to penicillin at 200,000 units daily for a child of one to two years of age in 8 doses or better, if long sustaining penicillin is used then 300,000 units daily. The new aquapenicillin (Squibbs cysticillin) permits of this being given to babies. Only rare strains of H. influenza are killed by penicillin but H. Influenza does respond to Streptomycin in a dose of 1 gm. daily in 2 divided doses, under one year .5 gm. and this should be used routinely. Consideration must be given to the use of Aureomycin. Also, specific anti-Haemophilus Influenze Type B Serum (rabbit) may be used. Sulphonamides are still useful aids, H. Influenza infection sometimes being successfully treated by Sulphadiazine if the case is mild and it is given early.[3]

It is not wise to administer Codein sulphate, so common in cough mixtures, as it is an anti-expectorant increasing the viscosity of the sputum as does also Atropine sulphate. Some physicians feel that the struggling dyspnœic infant having Laryngotracheobronchitis should be given a sedative. This is not wise. While the infant is under the influence of sedatives the cough reflex is suppressed, secretions accumulate in the airways and death from suffocation occurs. Also, they mask the signs of air hunger, the great signal. Therefore all opiates and other sedative or narcotic drugs are contra-indi--cated, and this includes the barbiturates which some are tempted to use[2]. Occasionally acute Laryngotracheobronchitis has been confused with asthma and so a similar warning is issued against the use of the so-called anti-histamine drugs because of their possible sedative and atropine-like action.

To return to the care of the patient in the high-humidity enclosure. In the severe cases, physical examination, nursing and laboratory procedures should be kept at a minimum in order to obtain rest. It is essential that the patient's intake of fluids be main-

tained and, if the patient cannot take them by mouth, then intravenously or by the subcutaneous route—for infants 2 fluid ounces per pound per 24 hours and, with the older child, 1 fluid ounce per pound. If urine is 1015 or below, fluid intake is satisfactory. Small blood transfusions (100-150 c.c.) may be necessary. The administration of concentrated blood plasma or blood serum has been suggested on account of its dehydrating effect on the laryngeal oedema but no one seems enthusiastic over it[1] [2].

The principal causes of death in Acute Laryngotracheobronchitis are, failure to relieve obstruction, this being foremost; also, overwhelming toxaemia, post-operative infection, pneumothoracic and mediastinal emphysema.

The picture of a sudden acute onset and an emergency situation must be recalled. A child with only a common Upper Respiratory Infection with a slight croupy cough of no alarming nature may suddenly awaken out of a nap—day of night—gasping for breath. Or, a child under treatment for an average cold may suddenly develop dyspnoea and, while the ambulance is rushing to hospital, artificial respiration be required. True, in the milder cases there is time to follow out all the procedures outlined. However, it is so often an emergency that it is put into the steam-oxygen tent at once. If no amelioration of symptoms occurs in an hour, then comes the matter of tracheotomy—or perhaps even at once. Early in any case a laryngoscopic examination at least should be made and, if possible, a bronchoscopist should see the patient.

Tracheotomy is indicated if the patient's dyspnoea increases and if signs of laryngeal obstruction become more marked despite the use of moistening apparatus. Evidence of extreme restlessness, cyanosis and fatigue also is an indication for tracheotomy. In addition, demonstration by auscultation that there is diminished entry of air into both lungs is further evidence that the patient's airway has been greatly reduced in calibre. Tracheotomy is preferred to intubation. Ideally it is done after a bronchoscopic examination and after crusts and secretions have been removed through it and while the instrument is still in place. In an infant the operation should be well below the larynx so that the tube will not irritate the subglottic region but this is not a discussion of the details of tracheotomy in an infant. The emergency situation and the necessity of tracheotomy must be emphasized, however, for, to be effective, it must be done long before exhaustion occurs. Even in the earlier stages all preparations should be made and if delay is decided upon the most observant nurse must be present and a bronchoscopist waiting close by. In some services it seems that tracheotomies are done extremely early—the leisurely tracheotomy done in the most early stages of the condition. Tracheotomy is not the end or the most difficult task. All the preoperative procedures must postoperatively be maintained or increased, with fresh measures taken for introduction of moist air into the trachea[1]. This, if properly accomplished, may keep the secretions in such a fluid state that a suction catheter suffices for further removal. More often, however, in spite of these measures the work of the bronchoscopist has only begun and the removal of crusts may need to be done every few hours over a period of days. During this time there must be a highly trained and experienced nurse in constant attendance and a bronchoscopist available close by. Along with the maintenance of adequate humidity, suitable temperature and rest, the greatest attention is needed for supportive measures and to combat the infection.

Fundamentally tracheotomy is the choice of treatment for establishment of airways as it prolongs the life of the patient, allowing time for other measures to be effective. In the Toronto series the mortality (over a 20-year period, following tracheotomy dropped from 100% to 0%, or an average over a 5-year period of from 80% to 35% showing the part that infection played in post-operative deaths. In the recent Texas series—an epidemic one—the physician reporting 38 cases had 12 hospitalized with two tracheotomies and no deaths. Vancouver General Hospital reports one tracheotomy in 11 cases.

In summary, Acute Laryngotracheobronchitis is a disease of varied bacterial etiology. It is serious and particularly so in infants under one year of age with, at times, emergency conditions developing from laryngeal obstruction. Treatment consists of pro-

viding adequate moisture in the inspired air, with sometimes use of expectorants and, depending upon the condition, oxygen under special care. The use of chemotherapy and antibiotics is indicated and of great importance is good nursing care. Tracheotomy is sometimes necessary as is also bronchoscopy. Sedative drugs are contra-indicated. It is hoped that this discussion will stimulate interest locally in Vancouver in early recognition and more accurate diagnosis, as undoubtedly many cases are not recognized as coming under the diagnosis of Acute Laryngotracheobronchitis.

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A PROBLEM CHILD IS A CHILD WHO IS TRYING TO SOLVE A PROBLEM

Read at a regular monthly staff meeting of the Children's Hospital on April 22, 1949

By DR. H. BAKER, Vancouver

The above title is a quotation from a forgotten source.

It would be more correct if the quotation were—a problem child is a child who is trying to solve *the* problem—the problem of growing up.

From its first breath that problem is present with the infant and as his environment enlarges and his needs increase the problem grows apace. Most people meet the problems of everyday life some how or other. The situations resolve in some fashion with some type of fairly acceptable superficial solution.

When do problem children evolve? How do problem children evolve? Neither of these questions can be answered directly until we try to define the main component of the question, the word problem.

A problem is a—Point to be solved, Controversy, Point in dispute, Discord, Base of contention, Enigma, and as such is an unsettled situation. In any unsettled situation there is more than one point of view to be heard and gone into.

From the beginning each child has two facets which have to fit into his immediate environment:

1. His primitive remote ancestry which is also reflected in the race in general.
2. His reasonably recent ancestry which goes to make up his more personal characteristics.

From the beginning these three factors, the two mentioned and the environment, are in conflict. The child having been conceived and born, only one of the three factors

can be modified, that of environment. The other two factors can only be guided into the various channels of the surrounding environment. It is the type of guidance that the child gets that counts.

From the very beginning there is a clash between inherited characteristics and the environment. The child in his intra-uterine evolution reflects the development of the race. The organism is quite at home in his watery world and is content there. It is when he has to leave this to become a land animal then he begins to object and rightly so. He has to make a change in a very few minutes that took the race as a whole many eons. He objects all the way down. As he grows he takes on more the characteristics of the land animal and is more at home. He fusses less. Reflecting the more recent changes of the race he takes on a veneer of civilization and becomes more acceptable. He takes the latter changes more in his stride. This we call maturity.

So, basically, we have then in all family groups a potential conflict between the remote past and the immediate past on one side, and on the other side, the present. It only complicates the picture to point out that the present (as represented by the adult) is also modified by the past because every adult is a child more or less grown up.

Russel Brain in a recent article has aptly pointed out that individuals vary because of the tremendous number of schemas in the brain that go to shape one's personality. When we stop to think about this the number of variations are almost too enormous to conceive. He does not state what he means by schemas. I rather think he means the innumerable pathways that any stimulus entering an individual's grey matter may take. There is no doubt that at birth, certain pathways are the more likely, depending on the individual's inheritance. Depending on many factors other pathways or schemas are activated. Their relative permanency will depend on their repetitive performance.

From the beginning the neonate is at variance with his new world. He knows he is not happy because even his skin tells him that it is resting not against a cushioned atmosphere of water but rather against a hard and rough flannelette surface. He begins to receive messages from his G.I. tract, from his visual and auditory and olfactory systems. This is most annoying and he does not hesitate to tell us so.

Right here at the start we begin to notice the differences between children. Some cry more readily. All men are not born with the same schemas.

It has been humourously bandied about, in discussing adult psychiatric cases, that maybe his mother did not feed him right. I do think that in the first few days in hospital we may have the makings of future trouble in the home. An irritable baby, a tired mother and attendants who do not understand make a poor combination. It can be the beginning of a heap of resentment on the part of the mother. No matter what the future may bring forth the mother may remember what a difficult feeder he was. Certainly a few days of difficulty in themselves do not make a problem child or a rejecting mother, but it can be the beginning.

Even if we are dealing with an infant who is well, there is a period of adjustment that the infant goes through in the average home. An adult coming into a new household may take many days to fit into the scheme of things. Is it any wonder a new baby has colic? It is a period of adjustment to many things. Why, even his digestive juices may not all be present. It may be difficult enough to digest the food he is made to digest. So if he draws his legs up and howls after imbibing a man-made brew one must not be too surprised. During this first few months many a mother has said in exasperation, "If he could only talk and tell me what the trouble was." In years to come the query may well be different. "If only I knew why he behaves as he does. When I ask him he won't tell me."

Man pays many prices for the type of development he has elected to follow. In order to grow well and reproduce his species he has to have food other than milk soon after birth, certainly within the first six months. He is not developed enough to go out and get it and so it has to be fed to him. For many years this need was not

recognized and many children did not mature. When the knowledge of this need became more widespread the wise men began to regiment and make rules. It meant nothing that some children did not fit the rules. The rules must not be broken. The child must be made to fit the rules. He must lose his sucking reflex when the rules say and swallow these foods whether he is ready to digest them or not. The wise men vied with each other to prove their wisdom by seeing how young a child could be made to follow the rules. Poor babies and poor mothers! The further they were driven from understanding each other the wiser the wise men became. This era of wise men is passing but the shadows remain. In some places the nutritionists and the "makers of dots on cabalistic charts" have taken their place. In the end they too will go and maybe with their passing will go all our feeding problems. If ever there was a man-made problem this is it. This problem in turn can be the making of a problem child.

Another man-made problem is the one that evolves about elimination. It was proven in dogs that you could train them to do many things even to spitting through tubes when a bell was rung denoting the coming of food. This was an interesting experiment and taught us many things, all about reflex arcs and so on, and there it should have stopped. Unfortunately it was carried into the nursery. By the same type of reasoning one should be able to train a child to eliminate at specific times. The rule was laid down and children had to fit the rule. The fact that the nervous pathways to the bladder and rectum were not even ready to function did not matter. Anatomically the nerves were there and they had to work. By some maternal alchemy they did function before they were ready, for some mothers. As the child matured and the nerves were myelinated and other schemas were established the situation was not so smooth, and more often than not the chagrined mother found that the process reversed itself and this time it took many years to establish. A child's elimination habits take more than a reflex arc to make them work smoothly. Where the child is trained early the resultant effects on his life may have many variations, some very severe. Again we have the genesis of a problem child all because there is a clash between the past and present. Man pays a big price to be more acceptable to those about him.

There are many ways in which the developing child clashes with the present.

There are several common problems which worry mothers the most. I have mentioned the two at the head of the list. The others listed usually have to do with *temper, fear, obedience, sex.* When we stop to analyze them, a common pattern evolves even if the pattern may be made out of seemingly different components. Commonly enough one problem may be outstanding but the child may have all the other mentioned problems. The pattern usually points to a lack of understanding of the development of a growing child regardless of his mental status. The various phases that the average child passes through are the same whether the child is bright or dull. The brighter child passes through them earlier. In the dull or retarded child the evolving phase may be modified because of the child's larger size but the problem is the same.

In the past when families were larger, children grew up with other children. In the past few months I have had several children brought to me by their parents with usually one major complaint. For some reason this one complaint stuck out in the mother's mind. A carefully taken history elicited many other aberrations which to my mind were just as disturbing. One can often arrive at a working diagnosis in these cases by hearing what goes on as the child and accompanying adults come down the hall and into the waiting room. The outstanding fact is that these two year olds and less are treated as adults. The adults accompanying them talk to them at great length, going into endless discussions and reasons for everything that is done. The little brain is over stimulated in a ceaseless barrage of words of which it can understand less than one in ten. At times when it so suits the adults the child's response is fun and cute and

therefore acceptable. This gives us a problem. I think that in many small families this is a potent factor for problems.

To generalize (which is never very wise) if any child is put in a situation which is not compatible with that child's development, problems may arise.

Many of us in thinking of a child, his brain and his development are prone to think in terms of something nebulous. There is nothing abstract and distant about the developing brain and its effects. In the past two years I have thought of the brain as of any other gland of the body with two types of secretions as e.g. the pancreas. The secretions of the brain are in forms of energy. There is the external secretion which has to do with various efferent and afferent messages. The internal secretions are the other functions of the brain, the thoughts. This idea has helped to keep before me the concept that the brain is something real which actually produces a substance which is dynamic. When this substance, i.e. the internal secretion, is produced in the amounts which are usable and just plentifully satisfying the individual needs, there is balance. When the substance is not enough there are signs of lack. When there is too much produced there is imbalance the other way.

There is another way which I have found of help in thinking of the psychic functions of the brain especially in the child. Freudian theories tend to scare us. We do not need to take sides in the conflict that is still being waged. I for one, think that if he did nothing else Freud has helped put the psychic side of the human being on a plane where it is becoming more intelligible and can be grasped. Be that as it may, many of Freud's theories started as mere premises and are not as yet proven. They are just shafts of light in the right direction. I think of some of these on the same plane as the atomic theory. Certainly these were theories to start with. Today scientists can follow the track of various minute moving bodies on sensitized film in the ionization chambers. They are helping to prove the atomic theory. One cannot read the thoughts in the mind of a child. There are people today who are following the development of children's minds by observing them. Their actions are the tracks they leave behind. Freud stated that children in their development go through certain psychic phases. To reach a well balanced maturity a child must pass through each successive phase before he can go onto the next one. This pyschic concept is no different really than the physical concept of development which we all accept readily. People like Gesell who have been observing children carefully for many years say the same thing. Gesell's books in the main are not based on theories. They are pure observation. It matters not that they call these phases by different names.

I have gone off on this rather long tangent to show that we should not be afraid of the Freudian theories. There is value in them. Certainly Gesell's observations are solid and down to earth and any one reading them would accept them. They prove what Freud said. The psychic development of a child is a dynamic process. Each phase passed through adds its colour and shape to the child's personality makeup. These depend on how the problems posed were handled. When a stage in development is not altogether successfully negotiated vestiges of that stage become stumbling blocks to further mature development.

A recent text book in general pathology entitled—"Reaction to Injury" by Forbus has this to say. "The individual is considered to be capable of reacting in only three essential ways—1. Resisting. 2. Submitting. 3. By effecting an adaptation."

"These three reactions, therefore, are taken to be the basis of all disease and recognized disease entities are considered to be the expressions of the elaborations of one or several of these reactions." I have quoted these several sentences verbatim because they might well be cited with reference to the child's psychic development. From the clinical point of view a problem case is most often discussed from the symptomatic point of view, i.e. what has the child done wrong. The list can be very long. In effect the actual misdemeanour is of no value in solving the problem (unless one applies the moralistic point of view and certainly some childish errors are worse than others.)

The same outward symptoms may be produced under an innumerable variety of differing situations. If we are truly to help solve the problem it is not enough to get a history from the adults involved. Let us recall Forbus' definition. Only by studying the child uninhibited can we find out whether he is resisting, submitting or effecting an adaptation. The child himself cannot name what he has been trying to do with reference to a situation. If we get a chance to observe him we can piece together the missing parts. He must be removed from the environment which caused the trouble and put in one most unlike it. To try to treat him otherwise is like trying to decide in an unconscious patient whether he is in a diabetic coma or in insulin shock without even knowing whether he is a diabetic.

Vancouver needs a home where problem children may be placed for long periods of observation. There are very few on the continent but more and more people are becoming cognizant of their need. The Children's Hospital in its plans for expansion is considering the construction of such a home.

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RENAL TUMORS

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Read before the Vancouver Medical Association Summer School, 1949.

When you read the literature on renal tumors, you are impressed by two things, first, the variety of classifications and terms and secondly, the poor prognosis.

Most classifications are extremely confusing to the clinician because they are usually devised by the pathologist who is concerned with cellular differentiations and controversies over histogenesis of academic interest only. In one textbook there is a classification which takes up a page and a half. The common important and interesting tumors are lost in a mass of pathologic data. In a recent article it was noted that in one type alone, the embryonal or mixed tumors, there were more than fifty different pathologic diagnoses, based on attempts to create new categories for the wide variety of cellular structures found in this bizarre group.

We are not concerned here with fine histologic differences. However renal tumors do have certain characteristics and distinctions such as the part of the kidney from which they arise, their general structure and gross appearance, their clinical behavior including prognosis which permits us for practical purposes to divide them into four distinct groups:

1. Tumors of the renal pelvis papillary (common) epidermoid infiltrating (rare)
2. Epithelial tumors of the parenchyma adenoma. Adenocarcinoma (common); hypernephroma (rare).
3. Connective tissue tumors benign (fibroma, etc.) sarcoma.
4. Embryomas or mixed tumors.

I am not offering this as another classification but simply as a guide for discussion.

The papillary tumors of the renal pelvis are a very interesting group. They are entirely different from the other tumors of the kidney and are more closely related to the common neoplasm of the lower urinary tract, the papillary tumors of the bladder. They have the same structure and clinical characteristics which is explained by the fact that they arise from the same transitional cell type of epithelium which lines the ureter and bladder.

They start as small villous growths which at first may be benign, but as they grow the fronds tend to coalesce, to form solid tumors, to invade and ulcerate, finally becoming infiltrating papillary carcinomata.

This is one of the earliest that I have been able to diagnose and remove.

This is a larger one in which the villi have coalesced to form a more solid tumor.

This is a further stage in the development of these growths showing hydronephrosis from pelvic obstruction and some beginning invasion.

Another papillary carcinoma with definite invasion.

Still another in a more advanced stage of ulceration.

One of the outstanding features of this group is the multiplicity of the lesion. In a patient with a papillary tumor of the renal pelvis there is about a 50 per cent chance that he has a similiar growth in his ureter or bladder or both. These used to be, and in some quarters still are, spoken of as secondary growths or implants from the primary tumor in the renal pelvis. However, pathologists will not admit of the possibility of tumor implantation on intact epithelial mucosal surfaces. It may occur on endothelial or serious structures, such as the pleura or peritoneum, but they insist that it cannot occur on epithelial mucosa. The consensus of opinion is that in these patients the entire transitional epithelium of the urinary tract is sensitive to some carcinogenic agent and that these are multiple growths in a susceptible mucosa.

Regardless of theoretical considerations it is important to remove as much of the susceptible mucosa as possible at the time of the nephrectomy, that is, all the ureter and a segment of the bladder around the ureteric orifice of the same side. The patient should be followed for years after the operation and have repeated cystoscopic examinations, at least every six months for three or four years.

The tenacity of these tumors was demonstrated in a patient I saw some years ago. He had had his right kidney removed by a general surgeon for papillary carcinoma of the renal pelvis. The ureter was left in and some months later there was a persistent hematuria. A urologist found papillary growths protruding from the ureteral orifice on the right side and others in the bladder. The latter was fulgurated and the stump of the ureter removed. However there were frequent recurrences in the bladder which could not be controlled and the late Dr. Robert Coffey did a total cystectomy, transplanting the left ureter into the bowel. About a month later the patient had an obstruction in the transplanted ureter requiring a lumbar ureterostomy for drainage.

A few months after this he bled again and when I saw him for the first time, examination showed that Dr. Coffey, in doing the cystectomy, did not remove the prostate but left a little flap of bladder wall which closed over the vesical outlet and formed a small pocket which was filled with papillary tumors. A radium pack, placed in the pocket through the urethra, did not control the bleeding and I had to do a radical perineal prostatectomy. He died about a year later and at autopsy, multiple papillary tumors were found in his left ureter.

This was an unusual case but it illustrates the tendency to recur and the necessity for prolonged observation in this group.

There is another rarer pelvic tumor, the ulcerating epidermoid type, with epithelial pearl formation resembling a squamous cell carcinoma. It may occur in long standing pelvic irritations from infection or stone and may be preceded by a leukoplakia. It is frequently found only when the kidney is removed for some other condition, such as calculous pyonephrosis. There are no associated tumors and it is not necessary to remove the entire ureter. The mortality rate is high.

We now come to the second group, the epithelial tumors of the cortex of which this is an example, an adenocarcinoma, showing necrosis, hemorrhage and cystic degeneration.

About 85 per cent of all malignant renal tumors are adenocarcinomas, incorrectly called hypernephroma. This common tumor does not arise from the adrenal or adrenal rests yet we can't seem to get away from the term hypernephroma, probably because it has been accepted for years. True hypernephromas are very rare. It seems odd that for years we should look outside the kidney for the origin of its commonest tumor,

as if there were no epithelial cells in the kidney parenchyma itself capable of neoplastic change. It does not seem possible that the kidney should differ in this respect from other organs.

It is now the consensus of opinion, as emphasized by Bell, that these tumors arise from solid adenomas and from the renal tubules, and for clinical purposes it makes no difference whether they are made up of large clear cells, which is the commonest type, or small dark granular cells, alone or in combination, or whether the arrangement is tubular or alveolar, they are still adenocarcinomas. The term hypernephroid carcinoma is better than hypernephroma but it is still not definitive.

This shows a cortical adenoma which was found in the kidney I removed for the very early papillary tumor of the renal pelvis that I showed you in the first slide. You can see the yellowish color similar to that of the tumors of the adrenal cortex, which aids the impression that they are hypernephromas. Microscopic section showed it to be an adenoma undergoing malignant change. In time it would have been a typical adenocarcinoma.

This is another adenocarcinoma, less cystic, with less hemorrhage and necrosis than the first one.

This is another adenocarcinoma with marked cystic degeneration.

This is another I removed just recently.

These are all adenocarcinomas of the large clear cell variety, the common or hypernephroid type. They tend to become encapsulated and may grow slowly. There is a tendency for thrombotic extension of the tumor into the renal veins and even into the vena cava. Metastasis usually takes place through the blood stream to the lungs or to the bones. Occasionally the discovery of a metastasis leads to the examination of the kidneys before there are any subjective symptoms of renal tumor. Late metastasis may occur years after the kidney has been removed.

This shows a metastasis to the heart muscle.

This is an adenocarcinoma of another variety, the small dark celled type. It is more malignant and more invasive than the large clear celled or hypernephroid tumor. At the time I took out this kidney I removed a metastatic nodule in the liver for biopsy. Obviously there must have been others, but this woman is alive and well, three years after operation with no demonstrable recurrence or metastasis.

This may be taken as a warning against the too enthusiastic interpretation of the effects of treatment in malignancies. If this woman had received postoperative x-ray therapy, her unexpected survival might have been attributed to the effect of radiation. Nothing however has been done.

In these small dark celled adenocarcinomas, there is early lymphatic invasion. Occasionally they may spread to the bodies of the vertebra. The prognosis in this type is poor.

We now come to the third large group of connective tissue tumors, including those of the capsule. These are the fibromas, lipomas, leiomyomas, grading from benign neoplasms to highly malignant sarcomas.

This is an example of a large benign fibroma, arising from the capsule and diagnosed as a solitary cyst before operation. Despite its appearance it is not a perirenal tumor and there was more invasion of the kidney than is shown in this section. The kidney might have been spared but facilities for microscopic examination were not available and it was considered better to take it out than to find later that there was a malignancy which could not be controlled.

This is another connective tissue tumor, a highly malignant fibromyxosarcoma. The diagnosis of sarcoma is not as common as it used to be. Some of the so-called sarcomas are undifferentiated carcinomas or belong to the fourth group, the embryomas or mixed tumors.

Prior to operation there was no evidence of metastases, but two months later, the ribs and lungs were filled, confirming my impression that very often surgery is respon-

sible for dissemination, a point which I want to emphasize later.

This is another very rare sarcoma of a low grade of malignancy, a neurogenic sarcoma. It was thought at first to be a fibroma but on special tissue stains, it was found to be made up of nerve tissue. It is not related to the neuroblastomas or sympathicoblastomas which are highly malignant embryonal tumors, but it is higher up the scale. The term sarcoma conveys a false impression of its malignancy. The patient is alive and well after five years.

We now come to the fourth group, the embryomas or mixed tumors. They are related to the retroperitoneal or perirenal tumors arising from the embryonic remnants from the genital ridge. The one of chief interest is the embryonal adenosarcoma, more commonly seen in children and known as Wilm's tumor. They form 20 per cent of all malignancies in children and usually occur before the age of five. They are encapsulated but grow very rapidly. Generalized invasion of the kidney is late but there is early compression. Hematuria is a late symptom and the first sign is usually a large mass in the abdomen. This an embryonal mixed tumor in an eleven year old boy.

This is another embryonal mixed or Wilm's tumor in a baby.

This shows the characteristic soft brain-like tissue which is so easily spilled or squeezed into the wound when they are removed and which accounts for the high percentage of local recurrences. These tumors are not usually discovered until they are very large and the prognosis is poor. If the patient survives two years they will probably get well, for recurrences come early.

I have not included cystic disease of the kidney in this discussion because it is a subject in itself. This is an example of polycystic kidney which is differentiated from renal tumor by the characteristic pyelogram, the fact that it is bilateral and the evidences of chronic renal insufficiency.

Solitary cysts of the kidney occasionally present a problem. There are two types, the serous and the hemorrhagic. Very often in the latter, there are malignant components which are not discovered unless the capsule is carefully sectioned. This is a large solitary hemorrhagic cyst with a tumor nodule at the deepest point of the cysts contact with the kidney.

This is the microscopic section showing adenocarcinoma in the fibrous wall.

I have seen five of these large hemorrhagic cysts in which malignancy was not suspected but found only on microscopic section. These are not cystic degenerations of large tumors. This opens up another subject which is not for discussion here but I thought it might be of interest to call your attention to the fact that solitary cysts are not always benign.

In the foregoing I have attempted to demonstrate the gross appearance and clinical characteristics of the four common types of renal tumors. With this background we come to that phase of the subject with which the clinician is chiefly concerned, that is the prognosis and the methods of improving the survival rate, which averages approximately 17 per cent for a five year period.

It becomes progressively poorer in the groups in the order in which they were discussed. It is best in the large clear celled or hypernephroid carcinomas, poorer in the small dark granular celled adenocarcinoma and decidedly less in the sarcomas and the embryomas and mixed tumors.

Despite the inevitably poor prognosis in some types, the over-all survival rate can be improved, first by earlier diagnosis and secondly by removing the kidney in such a way as to minimize the likelihood of local recurrence and discontinuous metastasis through the blood stream.

As in any cancer problem, there is the usual plea for early diagnosis. In most of the specimens I have shown, the growth was well advanced before it was discovered and the kidney removed. There may have been an absence of both subjective and objective symptoms until the tumor was of fairly large size. On the other hand, the presumptive evidence may have been there but not recognized.

The symptom triad in order of frequency is: hematuria, pain referable to the renal region and a palpable mass. A reversal of this order is a bad prognostic sign, for by the time there is a palpable abdominal tumor, the growth is fairly well advanced.

The common and usually the earliest symptom is painless hematuria. The patient is fortunate whose tumor is so situated that it causes early bleeding, assuming of course, that its source will be investigated immediately.

Both the physician and the patient may be lulled into procrastination by the fact that the bleeding was not severe or prolonged. Despite the fact that everyone knows the importance of hematuria, we occasionally find in a history the statement "I was told to come back again if the bleeding recurred." It may never recur or the intervals between bleeding may be so long as to make it too late. No patient with blood in the urine should leave the office until the machinery has been set in motion for a complete investigation of its source.

In the embryonal or Wilm's tumor in children, bleeding is not a prominent symptom, in fact it is rarely present. The mother may notice that the child is pot-bellied or feel a tumor when she is giving it a bath.

Associated symptoms of renal tumors are loss of weight, loss of appetite, fever, leukocytosis and secondary anemia. When these occur without any obvious cause, the kidneys should be considered even in the absence of symptoms referable to them.

The exact diagnosis is made by retrograde pyelography. Excretory or intravenous urograms may at times be suggestive but they are not conclusive and may be misleading. The characteristic findings are narrowing, elongation, obliteration and displacement of the pelvis and calices. There are many varieties and combinations of these distortions and there is nothing characteristic of each type except the constant filling defect in the earlier papillary carcinoma of the renal pelvis. At times repeated or periodic pyelograms are necessary to establish the diagnosis. A few examples may be of interest.

This is the three minute film of an excretory program in a young woman who had hematuria, showing a filling defect in the left pelvis.

Also present in the ten minute film.

As is the custom, a retrograde pyelogram was then done for confirmation and apparently there is no abnormality. However it was realized that the opaque media may have obscured the tumor so a picture was taken half an hour later after some of the skiodan had drained off: This showed the same filling defect that was present in the excretory urograms. At operation, a malignant papilloma was found. This is one of the earliest papillary tumors of the pelvis that I have seen.

This is the pyelogram in an early papillary carcinoma with a filling defect along the lower border of the pelvis.

This is a pyelogram of a more advanced papillary carcinoma of the renal pelvis with a filling defect in the upper major calyx and evidence of invasion of the parenchyma.

This is a pyelogram of a large clear celled adenocarcinoma in a young man. There were no symptoms referable to the kidney and a renal study was done only after a biopsy of a large supraclavicular node suggested metastasis from a renal tumor.

This is a pyelogram in a very large embryonal or mixed tumor in a young Japanese girl and shows the characteristic displacement in these large growths. There are also some mottled areas of calcification in the tumor which is often suggestive. This growth had invaded the peritoneum and was attached to the liver. This patient was operated upon four years ago and she is alive and well without any evidence of recurrence and has recently had a baby.

This is the pelvic deformity in the patient with a neurogenic sarcoma.

carcinoma. There is a depression and deformity of the upper major calyx and some invasion of the upper margin of the pelvis. However it gives no indication of the size of the tumor which was adherent to all the structures in the upper lumbar space and to the diaphragm.

This is the pelvic deformity in the patient with a neurogenic sarcoma.

This is an interesting pyelogram in a patient with a benign fibroma arising from the capsule. Although there is very little invasion of the kidney itself, there is a marked pelvic deformity caused entirely by compression.

Accessory methods of diagnosis that are discussed in the more recent literature are staining of the urinary sediments for cancer cells by the Papaniculou method, aortography and perirenal aerograms. The Papaniculou smear technique may be of value in some obscure cases but it requires highly trained technicians with a good deal of experience to interpret the findings properly. There is still a large percentage of error, both positive and negative.

Aortography may occasionally be of value in the differential diagnosis of large abdominal tumors, splenomegaly, etc. It is unnecessary in the routine diagnosis of renal tumors. It carries with it more risk than some of the published articles would indicate. Interpretation of the aortograms are at times difficult and misleading.

Occasionally, when there is a question between a primary adrenal tumor and a tumor of the kidney, the injection of about 300 cc. of air through a large needle into the perirenal fat will diffuse, and after about 12 hours, outline the structures in the upper lumbar space. It is particularly valuable in the adrenogenital syndrome in children with precocious puberty in ruling out a tumor of the adrenal cortex.

In addition to early diagnosis, the survival rate may be increased by improvements in methods of removing the kidney. Usually by the time the diagnosis is made, these tumors are large, friable, with thin capsules and adherent. They are highly vascular with enormously dilated and engorged perirenal veins, often with thrombotic extensions into the renal vein or its branches. To strip and peel this mass from its attachments and haul and squeeze it through the usual lumbar incision is to invite trouble, not only immediate from injury to large vessels but late, as is evidenced by the shower of metastases that frequently follow surgery when there has been no evidence of secondary growths before operation.

It has long been recognized that this was an important factor in poor prognosis and the transperitoneal approach as advocated by Young, Cabot, Quinby, Wharton and others is now rather generally used.

However transperitoneal nephrectomy, as it is usually done with the patient flat on his back, leaves much to be desired. The contention that the renal pedicle can be easily isolated and ligated without manipulation of the kidney is largely theoretical, at least in my experience. The exposure is entirely anterior and when you come down on the tumor from in front you find very often that it overlies and completely obscures the pedicle and the large vessels. The mass is fixed posteriorly and laterally and has to be striped from its lumbar attachments and mobilized to permit safe ligation of the pedicle.

For several years I have been using an incision advocated by Sweetster which permits removal of the entire mass, including the fatty capsule, with less manipulation and with less danger of injury to large vessels, than is possible with any other method.

The patient is placed in the usual lateral position on a kidney elevator. The usual oblique lumbar incision starts at the lumbocostal angle and the twelfth rib is resected. The incision then continues downward and forward parallel to the course of the 11th and 12th dorsal nerve trunks, to the mid-abdominal line below the umbilicus and then upward to the ensiform, the patient being still in the lateral position on the kidney rest.

The muscles and rectus sheath are incised down to the peritoneum. This patient had had a gastric operation and a cholecystectomy so that she had a very thin scarred abdominal wall with poor landmarks. This shows the incision through the muscles down to the peritoneum.

The peritoneum is then stripped off of this large triangular flap which is retracted up over the ribs, and the abdominal contents fall away by gravity without retraction to the opposite side, giving an extraperitoneal exposure of the upper quadrant and lumbar space that is somewhat startling when you use this approach for the first time.

Because of adhesions, it was necessary to retract the peritoneum in this patient, but this shows the anterior exposure of the kidney which has not been freed at all but bulges into the wound without manipulation.

This is the posterior exposure at the lumbocostal angle and demonstrates the great advantage of this approach over the transperitoneal with the patient flat on his back. You can lift up the kidney without any stripping, which was important in this case because of the adhesions to the vena cava which you can see here. This kidney was not unusually large but the capsule was adherent posteriorly to the vena cava for about four inches. There would have been danger of injury to this vessel with any other approach.

This is the area after the kidney has been removed and before ligation of the pedicle. This yellowish structure is the adrenal.

If you use the ordinary oblique lumbar incision and find that the growth is larger, more vascular and adherent than anticipated, as they usually are, this exposure can be developed without changing the position of the patient. It may seem radical but it really permits adequate primary management of the pedicle and just as importantly, the removal of the entire mass and all the fatty capsule in one piece.

This is the tumor with the capsule stripped back and showing an invasion into the capsule which would have resulted in recurrence if any of it had been left behind.

There has been no trouble with wound healing in this incision.

Attempts to remove Wilm's tumors through an inadequate incision is one of the factors in the high mortality rate. This has been definitely reduced by Ladd of the Boston's Children's Hospital by the use of the transperitoneal nephrectomy. This more radical incision is applicable in children and I have used it twice recently.

The question arises of what value is radiation therapy in tumors of the kidney? The answer is, very little. Practically all the adult tumors, except the rare embryonal mixed tumors, are radio insensitive. Preoperative irradiation is a waste of time. Occasionally postoperative irradiation to local recurrences or discontinuous metastasis may have some temporary benefit.

However the embryonal or mixed tumors in children are radio sensitive, that is, some portions of them are, so that very often they can be markedly reduced in size by x-ray treatment. My own belief is that the best results will be obtained by immediate removal of the tumor through an adequate incision, reserving x-ray treatment for local recurrence or metastases.

Intensive irradiation sufficient to cause diminution in size of these very large masses may be dangerous because of damage to other sensitive normal structures; the liver, the spleen, the opposite kidney and particularly the spine. A delay of two or three months for x-ray therapy may permit extension of the radio-resistant portions of the tumor and cancel any of the benefits that may be obtained by reduction in its size. Postoperative irradiation in Wilm's tumor should be reserved until there is evidence of recurrence or metastasis and not given routinely.

This is the practice at the Tumor Institute at the Swedish Hospital in Seattle, but there are those who will disagree.

We have considered the tumors of the kidney from two standpoints, their division into groups depending on their structure, their clinical characteristics and the part of the kidney from which they arise, and methods for improving the survival rate. The mortality rate is high, but it can be modified by earlier diagnosis and by removing the kidney and all of its capsule with a minimum amount of manipulation through an adequate exposure.

PRACTICE FOR SALE

House and office, records, etc., of the late Dr. L. Broe, Hammond, B.C., for immediate sale.

For further information contact Mrs. May A. Broe, Hammond, B.C.

A POST GRADUATE SCHOLARSHIP

of a $1,500.00 is available for a Canadian woman who graduated in medicine not more than five years ago. The gift is from the American Federation of Soroptimist Clubs of the Western Canada Region, and runs for one year from April, 1950.

Details may be obtained from

Mrs. Anna Sprott,
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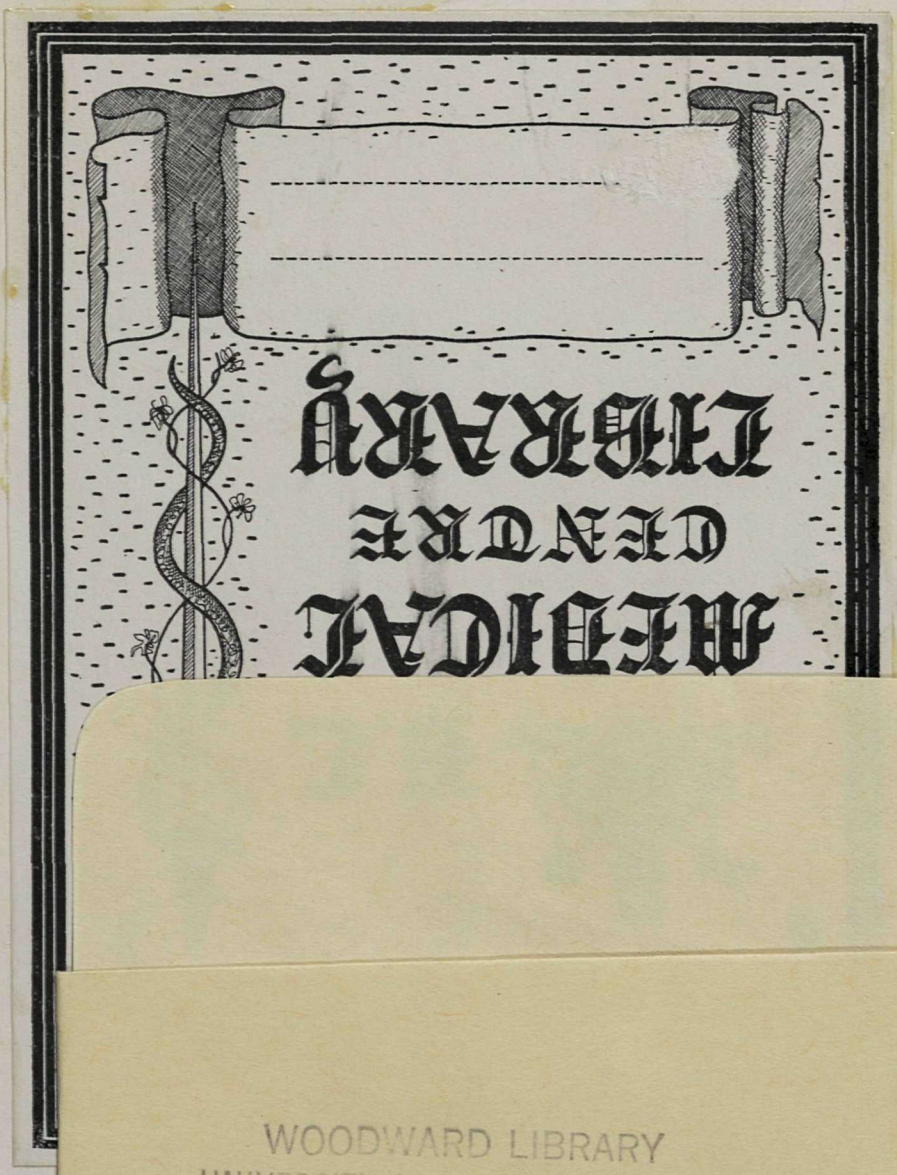

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