1947-48

To

DR. F. CYRIL JAMES,

PRINCIPAL AND VICE-CHANCELLOR,

McGILL UNIVERSITY,

MONTREAL.

Sir,

On behalf of the Executive Committee I have the honour to submit the thirteenth annual report of the Montreal Neurological Institute. It includes a summary of the clinical work for the calendar year of 1947, together with the scientific and research record for the academic year of 1947-48, and the list of professional staff at the close of the academic year.

Respectfully submitted,

J. PRESTON ROBB, M.D.,

Secretary-Registrar.

Executive Committee of the Montreal Neurological Institute: Wilder Penfield, Chairman, W. V Cone, K. A. C. Elliott, A. R. Elvidge, H. H. Jasper, J. Kershman, D. S. McEachern, F. L. McNaughton, Donald McRae, A. Pasquet, J. P. Robb, C. K. Russel, A. W Young.

CONTENTS

REPORT OF DIRECTOR

It is necessary for me to direct your attention to the present financial crisis and to the future of this Institute. But first I shall refer to graduate teaching and research. Full report has been made by others of the clinical and laboratory activity during the year just past.

TEACHING AND RESEARCH

Visitors tell us that they consider the unique feature of our organization to be the close integration of research and teaching with clinical work. This is, of course, no more than should be expected in a clinical institute.

This year more systematic seminars have been introduced in Neurophysiology and Neuroanatomy by Dr. Jasper and Dr. McNaughton and lectures also by Dr. Elliott on the chemistry of the brain. Dr. McRae has extended the graduate teaching in Neurological Roentgenography and additional demonstrations have been arranged in the Department of Neuropathology. Still, however, the less formal teaching that is carried out in clinical ward rounds and clinical conferences and in the Fellows' Society continues to be the richest source of graduate instruction.

Twenty-five fellows have been engaged in laboratory research at some time during the past year. Nine of them were enrolled for graduate degrees. These men have come with varied training and abilities from the fighting forces around the world, from the French and English universities of Canada, from coast to coast in the United States, Mexico, Uruguay and Brazil, from Norway, Holland, France, Switzerland and Czechoslovakia, from India, China and Australia. Our former colleague Dr. Jerzy Chorobski of Warsaw paid us a most welcome visit but unfortunately his assistant has not yet been able to leave Poland for the period of study that was planned for him. It is regrettable also that the strange state of world affairs has prevented us from seeing any of our neurological colleagues from the Soviet Union during the past year, although the book on Epilepsy and Cerebral Localization, that embodies some of the experience of this clinic, is being translated into Russian for use in that country.

FINANCIAL CRISIS

Last year at the annual meeting I pointed out that the Montreal Neurological Institute was facing a financial crisis, that after 12 years of growth in this friendly, bilingual city the hospital portion would have to be closed unless help came quickly. I pointed out also that income from endowment was so decreased that work in the scientific portion likewise would have to be curtailed unless help was forthcoming.

Help did come. For hospitalization it came from the Provincial Government and from the City Government. For research it came from the Federal Government.

Consequently, the hospital doors did not close, and we have continued to accept, from other hospitals throughout the Province, patients whose treatment requires the special equipment of the Institute and the special knowledge of its staff. Furthermore, the scientific work has gone forward at an increased rate of speed, and more graduate students than ever before have come from many lands to be instructed in neurology and neurosurgery and to help us with our research.

But this help brought only a temporary solution of our problem. Radical reorganization and rebuilding is imperative if the hospital within the Neurological Institute is to be placed on a secure footing. We must now set our problem before the people of this City and Province.

In placing our case before Canadians, it must be recognized that our hospitalization budget and our scientific budget are completely separate. Furthermore, our appeal is independent of and separate from any appeal which McGill University may contemplate for the purposes of general education. We have never competed and must not now compete with McGill University nor with the University of Montreal.

The Government recognition which has come to the Institute during the past year was unexpected. It was unique in Canadian history. It serves as an example of the cooperation between Federal and Provincial service to the people. But it also illustrates clearly the sharp delimitation of the field of responsibility that exists in this country. Mr. Duplessis recognized the opportunity to help the people of the Province by direct contribution to the costs of our hospitalization. Mr. King recognized the importance of scientific work for the people of Canada and thus contributed to research. But Mr. King did not contribute to hospitalization nor to the basic framework of university education.

The Neurological Institute discharges a triple function, and because of this has a triple allegiance:

1. *Care of the sick.* It is our task to accept the most desperate sufferers whether they come from farm, mine, factory, city street, the home, or from other hospitals. We undertake apparently hopeless cases referred to us by doctors anywhere. This is a service to the people of Quebec, and we must therefore turn to the public of this province or to the provincial and city governments for assistance.

2. *Scientific research.* In this field our service is to the country at large and to humanity. If the work is well done, support should come from the public of Canada and from their government.

3. *Teaching.* In this field our work is carried out within the Department of Neurology and Neurosurgery of McGill University. Teaching, both graduate and undergraduate, to be effective must be integrated within a university.

HOSPITALIZATION

From the beginning, the demand for admission has been great. We could crowd more public patients into wards and storerooms and into the military annex but not into private rooms, and so the public accommodation has been enlarged until, instead of the original 62%, public patients occupy 86% of the total beds, and only 5% of the beds are available for private patients and 9% for semi-private. Other general hospitals have 60% public beds and derive greater income from the remaining 40%. In order to alter this proportion and to produce a budget that can be balanced, a new hospital wing is required, as pointed out by Dr. Kershman in the Report of the Executive Assistant.

PROVINCIAL AID

Last year we approached the Provincial Government in regard to the increasing deficit on public patients. Mr. Duplessis gave us a sympathetic hearing and the annual contribution to our hospitalization deficit was increased from the $20,000, which we have had since the foundation of the Institute, to $50,000. But the promise was only for three years, and no answer was made to our request for aid with the accumulated deficit.

CITY AID

Last year we also approached the City of Montreal. The French and English members of our staff were received in a body by the City Council. Mr. Asselin pointed out that, in all fairness, the other municipalities within the metropolitan area should join the city in giving us support. Nevertheless, the city granted our request to increase the annual contribution from $15,000 to $35,000. No reply was made to our application for building funds.

These generous increases made it possible to keep the hospital portion of the Institute open. According to our figures of 1946, this would have balanced our budget. But costs continued to rise so that in the calendar year of 1947 there was still a deficit on hospitalization of $25,000. There remains an accumulated deficit of $160,988, and we estimate a further deficit of $40,000 during this year. It is obvious that this difficulty will continue until we can build a wing and thus increase the income from patients who are able to pay for their care.

MINIMUM IMMEDIATE REQUIREMENTS FOR HOSPITALIZATION

A. Removal of non-fireproof military annex and construction of permanent hospital wing $1,250,000

B. Hospital Endowment Fund $1,000,000

RESEARCH

Last year we pointed out that the annual income on our original scientific endowment had dropped from $50,000 to $35,000. At the same time our research enterprises had multiplied and a wave of graduate specialists from all over the world had come to us following the war.

In this dilemma we approached the Dominion Government in Ottawa, last year, to ask for increased support of research. We asked for a foundation grant, a lump sum gift that would yield an annual income of $40,000 so that long range performance could be planned.

Mr. King and the members of his Cabinet gave careful consideration to our application and on May 14th last year the Prime Minister wrote that the Cabinet had "decided that, in view of the national importance of the work of the Institute, an amount of approximately $40,000 should be made available this year toward the cost of the scientific research which is conducted by the Institute". Today, I am making the first public announcement of that generous gift.

I may now announce that we have received word from the Prime Minister's Office that the grant will be renewed for the coming year. Again, however, this is without commitment as to the future. So the work goes on but without assurance of permanency.

PUBLIC SUPPORT OF HOSPITALS AND MEDICAL RESEARCH

The past, the present and the future of the Montreal Neurological Institute might well be taken as a background against which to discuss the development of public institutions in Canada. This is a time when nearly all of our public hospitals are facing financial crisis. Our universities also stand at the crossroads of their destiny. And research institutes must demand to know whether the people of this country would have them gather groups of experts capable of sustained first class work or whether with a changing staff of junior workers they are to be second rate.

Money for public institutions must, in the last analysis, come from the public. Those who govern this country must decide whether they will allow private individuals to give voluntarily or whether by heavy taxation they are to shut off the flow of such giving. In the latter case, there must inevitably be an increasing degree of state support.

Scientific development is a field that must be entered by the Federal Government. Any nation that would compete with its neighbours in peace or in war must give continuing support to scientific research. This applies to medical research as well as to industrial and defence research. Seen from an historical perspective, it is evident that this is Canada's great opportunity to lead.

Look abroad, to Great Britain where the socialization of medicine is in full swing; to western Europe where medical men, dazed by a decade of war's frustrations, turn hopefully to their own governments and to their impoverished countrymen for the means to re-establish institutions in which, formerly, our young doctors sought inspiration; to India and China where medical aid, research and education are so inadequate that millions must suffer and die needlessly; to the U.S.S.R. where a totalitarian regime, under the banner of communism, boasts that it cares for the sick from the cradle to the grave and where seeds of medical research are planted in a rich red loam of rubles and each hopeful sprout of progress is welcomed by a fanfare of public approbation.

FEDERAL AID

What about Canada in this post-war world? Ottawa has created a National Research Council, and the Medical Division of that Council, under the able guidance of Professor Collip, gives grants-in-aid to short term research projects and also supports scholarships. This is excellent. But it is not enough. We have no University Grants Committee like Great Britain, no large private foundations for scientific support as in the United States, no really well endowed universities as in both those countries, none of the almost unlimited state support given to institutes in the Soviet Union.

Our great need in Canada is continued support and encouragement of groups of scientific experts established in institutes and in university departments. This can only come from the Federal Government, and to be effective it must be given without assumption of control by the Government. The country needs

a *Committee for Scientific Development*, or call it a *Foundation for Scientific Development*, in Ottawa. The members of that committee should be non-partisan and not subject to political pressure. They should be empowered to make lump sum donations for the endowment of selected institutions and they should bear in mind what scientific development this country needs most.

The Rockefeller Foundation concluded that there were men ready to go to work here and so they launched this Institute by a lump sum endowment for research. It was the only way they could have done it. Promise of help for a few years would have been absurd. Experience has shown that this method works and our Government can do no better than to adopt it.

If the Federal Government should create such an agency and provide up to ten million dollars yearly with which they may endow groups prepared to carry out research in the natural sciences, there will be no need to worry about local provincial cooperation. When a first-rate unit of scientists is created, the people of any province are sure to benefit by their presence, and provincial governments will do their part in so far as they may be interested in the good of their people.

DEFENCE

Men talk of the possibility of future wars. They shudder to think of death and destruction in the wake of atomic bomb explosions. They forget the human disabilities that would be left behind and that an aircraft which carries an atomic bomb may easily also carry the germs of bacterial warfare. Dreadful thought!

In case of war the National Research Council, which has no medical laboratories, will need the support of the best medical institutes. The medical counterpart of Chalk River should now be growing up in our universities, and the Department of National Defence might well support those units which could best turn their genius to the solution of the medical problems of atomic warfare.

CONCLUSION

But the subject of this report is the crisis in the affairs of the Montreal Neurological Institute. Our problem resembles that of other institutions in every province.

Survival of our public hospital depends upon financial support from the public and the governments within this province. If they want our hospital work continued, they must support it, for hospitalization, like education, is a provincial responsibility.

In so far as our scientific work is of value to the people of Canada, we are entitled to appeal to a wider public and to Ottawa. Scientific development in this country is a Federal responsibility. But we must have permanency of support, not incidental aid, if this is to become in truth a National Institute for the advancement of science.

WILDER PENFIELD,

Director.

IN MEMORIAM

It is with great regret that we record the death of two of our most distinguished consulting neurologists, Dr. Antonio Barbeau and Dr. Fred Mackay.

ANTONIO BARBEAU, M.D., PH.D.

Dr. Antonio Barbeau died in Paris on June 13th, 1947, while on his way to accept the invitation of the University of Montpellier to deliver a series of lectures. At the time, he held the posts of chief of the department of neurology at the Hotel Dieu, Professor of Neurology at the University of Montreal, as well as Consulting Neurologist at the Montreal Neurological Institute.

At the time of his death at a comparatively early age, he had already achieved an enviable reputation in Canadian medical circles, as well as abroad. In his own special field of neurology, he was proud of the mutual understanding which has grown between the English and French speaking groups in Montreal. To this understanding he himself contributed in great measure, and he longed to see it grow still further in neurology and in other branches of medicine as well.

Dr. Barbeau was a neurologist, neurophysiologist, teacher and leader of thought in French Canada — a man whose intellectual horizon knew no national boundaries.

FRED MACKAY, M.D., F.R.C.P. (C)

Dr. Frederick Holland Mackay joined the staff of the Montreal Neurological Institute at the time of its opening and continued to act as Consulting Neurologist until the time of his death, September 7th, 1947. At the same time, he acted as chief of the neurological service at the Montreal General Hospital.

It is difficult to describe such a man. He led his class when graduating from McGill and continued to lead throughout his life. He was interested in many things. He read widely and could quote freely from the poets. He always seemed to be in a hurry, yet he would stop and spend a half an hour or more with a patient, carrying on what we now call occupational therapy. He showed a great interest in and was always most helpful to the younger men.

At the memorial lecture held in his honour, Dr. A. H. Gordon stated: "One can imagine constant toil of mind or body making numb the spirit, but when combined with such a vision of the past, or better still, a vision of the future, the image before us may well resemble the Good Companion of all of us, Fred Mackay — Doctor, Friend and Man".

CLINICAL STAFF

Director

WILDER PENFIELD, C.M.G., M.D., D.Sc., F.R.C.S. (C)
Hon. F.R.C.S. (Eng.), F.R.S.C., F.R.S. (London)

Honorary Neurologists

A. G. MORPHY, B.A., M.D.
COLIN RUSSEL, B.A., M.D., F.R.C.P (C)

Neurologist

DONALD MCEACHERN, M.D.

Associate Neurologists

JOHN KERSHMAN, B.Sc., M.D., C.M., M.Sc.
FRANCIS MCNAUGHTON, B.A., M.Sc., M.D., C.M.
PRESTON ROBB, B.Sc., M.D., C.M., M.Sc.
ARTHUR YOUNG, M.D., C.M., F.R.C.P (C)

Associate Consulting Neurologists

ROMA AMYOT, B.A., M.D. (Montreal and Paris)
EMILE LEGRAND, M.D., Médecin Légiste (Paris)
JEAN SAUCIER, B.A., M.D. (Paris and Montreal)
NORMAN VINER, B.A , M.D., C.M.

Clinical Assistant in Neurology

MILLER FISHER, B.A., M.D., F.R.C.P. (C)

Neurosurgeon

WILLIAM CONE, B.S., M.D., F.R.C.S. (C), F.R.S.C.

Associate Neurosurgeon

ARTHUR ELVIDGE, M.Sc., M.D., C.M., Ph.D., F.R.C.S. (C)

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KEASLEY WELCH, B.S., M.Sc., M.D.

Assistant Adjunct Neurosurgeons

CLAUDE BERTRAND, B.A., M.D.
HAROLD ELLIOTT, B.Sc., M.D., C.M.

Roentgenologist

DONALD MCRAE, M.D.

Assistant Roentgenologists

PIO CAMEJO, M.D. (Half time)
DELBERT WOLLIN, M.D. (Half time)

Consulting Roentgenologist

CARLETON PEIRCE, B.A., M.Sc , M.D., F.A.C.P.

Physician in Charge of Electroencephalography

HERBERT JASPER, Ph.D., D.ès.Sci. (Paris), M.D., C.M

Anaesthetist

ANDRE PASQUET, M.D., C.M.

Assistant Anaesthetist

MAXWELL YATES, M.D., C.M.

Consulting Anaesthetist

F A. H. WILKINSON, M.D., C.M., F.I.C.A., D.A.
(R.C.P. & S. Eng.)

Back Row: T. Speakman, K. Kristiansen, J. Scott, F. H. O'Brien, H. Steelman.
Fifth Row: C. Greene, J. Hunter, J. Vasquez, J. Ziegler, C. Cazzullo, L. Roberts, R. Knighton, J. Bates, A. Pasquet.
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First Row: R. Notman, W. Gerber, R. C. Lewis, M. Baldwin, I. Jackson, A. Werner, C. L. Li.

TEACHING STAFF

A. *Department of Neurology and Neurosurgery, McGill University, Faculty of Medicine.*

Professor of Neurology and Neurosurgery, Chairman of Department	WILDER PENFIELD
Associate Professor of Neurosurgery	WILLIAM CONE
Assistant Professors of Neurology	K. A. C. ELLIOTT DONALD MCEACHERN FRANCIS MCNAUGHTON ARTHUR YOUNG
Assistant Professor of Neurosurgery	ARTHUR ELVIDGE
Assistant Professor of Neurological Radiology	DONALD MCRAE
Assistant Professor of Neurophysiology	HERBERT JASPER
Lecturers in Neurology	JOHN KERSHMAN PRESTON ROBB
Demonstrators in Neurosurgery	HAROLD ELLIOTT KEASLEY WELCH
Demonstrator in Neuropathology	HARRY STEELMAN

B. *Faculty of Medicine of the University of Montreal.*

Professeur de Psychiatrie	EMILE LEGRAND
Professeur de Neurologie	JEAN SAUCIER
Professeur Agrégé de Neurologie	ROMA AMYOT

C. *Department of Neurology and Neurosurgery, McGill University, Faculty of Graduate Studies and Research.*

Professor	WILDER PENFIELD
Research Fellow of McGill University	BORIS BABKIN
Associate Professor (in charge of graduate studies)	WILLIAM CONE
Assistant Professors	K. A. C. ELLIOTT FRANCIS MCNAUGHTON DONALD MCEACHERN HERBERT JASPER

EXECUTIVE STAFF

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Secretary-Registrar	PRESTON ROBB
Assistant Secretary-Registrar	LAMAR ROBERTS
Executive Assistant	JOHN KERSHMAN
Building Administration Supervisor	MISS EILEEN FLANAGAN
Executive Secretary	MISS ANNE DAWSON

RESIDENT STAFF

Resident	KEASLEY WELCH
Neurological Service:	
Assistant Resident	ERIC PETERSON, RALPH NOTMAN†
Internes	JOHN ARMSTRONG,* LAUDER BRUNTON,* NELLES ENGLAND, PETER PARE*
Externes	NORMAN AUCKLAND CARLO BOS,† GRAHAM TAYLOR†

Back Row: B. Thorburn, J. MacMillan, B. Francis, J. Aylwin, V. Hollett, E. Sawdon, J. Piddington, R. Vidal, E. Watson.
Third Row: M. Corrigan, A. Cameron, I. Boudreau, M. Lacharité, D. MacDonald, M. Campbell, G. McEwen.
Second Row: M. Comeau, A. Johnson, M. Cavanaugh, B. Cameron, E. Flanagan, E. Welch, E. Barrowman, L. McAuley, M. Mackenzie.
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First Neurosurgical Service:
Assistant Resident ..... LAMAR ROBERTS, REVIS LEWIS

Internes ..... IRA JACKSON
REVIS LEWIS, WILLIAM GERBER

Second Neurosurgical Service:
Assistant Resident ..... MAITLAND BALDWIN

Internes ..... CHARLES CURE, ALOYS WERNER
CLARENCE GREENE, CHOH-LUH LI

**Assistant Resident in Medicine, Royal Victoria Hospital, on rotation to Neurology.*

†On rotation from Allan Memorial Institute.

RESEARCH FELLOWS OF
MONTREAL NEUROLOGICAL INSTITUTE

JOHN BATES, M.D., C.M. (McGill)
ARLINDO CONDE, M.D. (Sao Paulo)
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JULES VASQUEZ, M.D. (Paris)
JAMES ZIEGLER, D.V.M., B.A., M.D. (Kansas).

NURSING STAFF

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Instructor ..... MISS ELIZABETH LONG, R.N.
Night Supervisor ..... MISS ELIZABETH BARROWMAN, R.N.
Assistant Night Supervisor ..... MISS LILLIAN MCAULEY, R.N.
Operating Room Supervisor ..... MRS. E. WELCH, R.N.
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Miss J. Spiers, R.N.
Miss J. Wade, R.N.
Miss G. Trafford, R.N.
Miss A. Roy, R.N.
Miss A. Hebert, R.N.
Miss H. Jackman, R.N.
Mrs. L. Fletcher, R.N.
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Miss B. Francis, R.N.
Miss G. Christiansen, R.N.
Miss A. Fyles, R.N.
Miss J. Piddington, R.N.
Miss B. Thorburn, R.N.

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Assistant Director ..... Mrs. Joan Thomas
Social Worker ..... Mrs. Jean M. Jones
Social Worker ..... Miss Teruko Hidaka
Social Worker on Research Project ..... Miss Gabrielle Bourque
Social Worker on Research Project ..... Miss Francoise Belanger

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James Cahill, Assistant Photographer
Miss Elynor Cobb, X-ray
Leonard Diamond, Electroencephalography
Miss Shirles Fyles, Electroencephalography
Leslie Geddes, Electroencephalography
John Gilbert, Neuropathology
Miss Jean Harris, X-ray
Lewis Henderson, Electroencephalography
Mrs. Norah Henderson, Neurochemistry
Charles Hodge, Photographer
Mrs. Betty Lawrence, Electroencephalography.
Miss Shirley McConnell, Electroencephalography.
Mrs. Delys Murphy, Neuropathology
William Noel, X-ray
Miss Lois Orr, Neurochemistry.
Miss Vita Ortenberg, Neuroanatomy
Miss Mary Roach, Neurophysiology
Charles Stevens, Neurophysiology
Miss Jean Vaughan, Neuropathology
Mrs. Betty Zorbach, Neurochemistry

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Miss Mabel Beighton, X-ray
Mrs. Elinor Christie, Manuscripts
Miss Olive Connolly, Neurophysiology
Miss Shirley Darragh, Neuropathology
Mrs. Corinne Deguise, Office.
Miss Violet McLaughlin, Case Histories
Miss Diana Meakins, Office Clerk, Social Service
Mrs. Miriam Meyer, Clinic Secretary
Miss Eleanor Migicovsky, X-ray
Miss Elsie Rae, Operation Reports
Mrs. Peggy Reppert, Social Service
Miss Mona Rice, Electroencephalography
Miss Eileen Robinson, Office.

APPOINTMENTS HELD IN GENERAL HOSPITALS OF MONTREAL BY MEMBERS OF STAFF

ROYAL VICTORIA HOSPITAL

Neurologist and Neurosurgeon-in-Chief	WILDER PENFIELD
Honorary Neurologist	COLIN RUSSEL
Neurologist	DONALD MCEACHERN
Neurosurgeon	WILLIAM CONE
Associate Neurologists	FRANCIS MCNAUGHTON
	ARTHUR YOUNG
Electroencephalographer	HERBERT JASPER
Associate Neurosurgeon	ARTHUR ELVIDGE
Clinical Assistants in Neurology	JOHN KERSHMAN
	PRESTON ROBB
Assistants in Out Door Clinics	KRISTIAN KRISTIANSEN
	LAMAR ROBERTS

MONTREAL GENERAL HOSPITAL

Consulting Neurosurgeons	WILDER PENFIELD
	WILLIAM CONE
Associate Neurologists	FRANCIS MCNAUGHTON
	NORMAN VINER
Associate Neurosurgeons	ARTHUR ELVIDGE
	HAROLD ELLIOTT
Assistant Neurologist	PRESTON ROBB

CHILDREN'S MEMORIAL HOSPITAL

Honorary Consultant	COLIN RUSSEL
Consultant	WILDER PENFIELD
Neurologist	ARTHUR YOUNG
Associate Neurologist	FRANCIS MCNAUGHTON
Neurosurgeon	WILLIAM CONE
Associate Neurosurgeon	ARTHUR ELVIDGE
Clinical Assistant	PRESTON ROBB
Radiologist-in-Chief	DONALD MCRAE
Assistant Radiologists	PIO CAMEJO
	DELBERT WOLLIN

HOTEL DIEU

Chief of Neurological Service	JEAN SAUCIER
Consulting Neurologist	EMILE LEGRAND

HOPITAL NOTRE DAME

Neurologist-in-Chief	ROMA AMYOT
Physician-in-Charge, Department of Neurosurgery	CLAUDE BERTRAND

HERBERT REDDY MEMORIAL HOSPITAL

Consulting Neurosurgeon	ARTHUR ELVIDGE
Attending Neurologist	JOHN KERSHMAN

JEWISH GENERAL HOSPITAL

Chief of Department of Neuropsychiatry	JOHN KERSHMAN
Consultants	WILDER PENFIELD
	NORMAN VINER

QUEEN MARY VETERANS' HOSPITAL

Chief Consultant of Neurology and Neurosurgery ..... WILDER PENFIELD
Consultant ..... WILLIAM CONE
Consultant ..... ARTHUR ELVIDGE
Director of Neurosurgery ..... HAROLD ELLIOTT
Consultant in Neurology ..... MILLER FISHER
Consultant in Electroencephalography ..... JOHN KERSHMAN

ST. MARY'S HOSPITAL

Consultant in Neurology ..... ARTHUR YOUNG
Consultant in Neurosurgery ..... ARTHUR ELVIDGE

VERDUN PROTESTANT HOSPITAL

Neurosurgery Consultant ..... WILDER PENFIELD
Neurosurgery Associate ..... ARTHUR ELVIDGE

REPORT OF THE NEUROLOGIST

DR. DONALD MCEACHERN

Our Neurological Service has grown in the last few years in a heartening way. This reflects an attitude on the part of our neurosurgical colleagues and the profession at large. From a few nameless beds the service has taken its place as co-equal. We are now able to make a choice of resident staff from a large number of well trained young men.

The Outpatient Department has been very active. It is organized now in the following way. Dr. Kershman supervises the Monday Neurological Clinic; Dr. Rabinovitch looks after the Special Neuromuscular Disease Clinic; Dr. McNaughton and Dr. Robb head the Seizure Clinic on Wednesday; Dr. Young heads the Neurological Clinic on Thursday and also supervises the Daily Treatment Clinic. A wide variety of new drugs and new forms of treatment has been under test in this clinic. I wish to pay grateful tribute to these men for their fine work.

We will soon welcome back Dr. Roy Swank who will head an important new attack on the dread disease — multiple sclerosis. Plans have been laid to organize a new diagnostic and research clinic for multiple sclerosis and this will be opened in the early autumn. It will make available a wealth of clinical material, and will give to multiple sclerosis patients the newest and best that can be offered. Treatment facilities are already available in the daily Neurological Treatment Clinic, under Dr. Young's direction, and this will serve as a testing ground for new techniques.

Day by day it becomes clearer that neurology must have its main springs in the broad discipline and stimulus of internal medicine and its root subjects. Internal medicine has not proven a good foster mother in the past, and indeed the resurrection of neurology has undoubtedly come through the hands of keen and militant neurosurgeons. For this we are grateful. Nevertheless, such great and ominous scourges as idiopathic epilepsy, multiple sclerosis, neuromuscular diseases and many others will be mastered only through the vision and anticipation of neurophysiologists, neurochemists, neuropathologists -- let me say neurobiologists. This holds for many problems of psychiatry too. It is a warm delight to us that this erstwhile dream is taking substance, as the Director undoubtedly planned it, and that a hand-in-hand attack is well under way to master these challenging problems of neurology.

REPORT OF THE NEUROSURGEON

DR. WILLIAM CONE

In 1947, 1227 patients were admitted to the neurosurgical service for investigation and treatment; 904 major operations were done. Many of the procedures usually carried out in the operating room were done in the Ward dressing rooms and do not show in the record of the year's work. There have been many successes, many examples of benefit without cure, and there have been failures. Even when the outcome is disappointing the effort may sometimes bring satisfaction to family, patient, doctor and nurse if the spirit of service went into the effort.

Technical skills in neurosurgery have grown with the years. Some of these skills have been developed here and, in this last year, progress can be reported.

In anaesthesia there have been advances. Dr. Pasquet has adapted some of the newer procedures to the neurosurgical need. Of particular significance is the combination of sodium pentothal and curare. Under ether anaesthesia, it has been possible to maintain levels of anaesthesia such that stimulation of the cerebral cortex has been possible. There have been improvements in posturing, leading to better vital capacity and better oxygenation. Methods of intubation under local anaesthesia have been worked out. Methods of controlling the patient's temperature have been improved. It is not uncommon now for a patient to leave the operating room after a long procedure under general anasthesia, with protective reflexes intact and active, temperature normal and, on occasion, the patients have responded verbally.

Some years ago, Dr. Gordon Petrie called attention to the use orthopaedists were making of homologous bone grafts. These are now used in the Institute and preserved by deep freezing. In a comparatively short follow-up, results seem to be as satisfactory as autogenous grafts.

In the years past, the lives of many patients with broken backs were saved in this Hospital but in only occasional instances was satisfactory rehabilitation of the paralyzed individual obtained. This year, for the first time, it has been possible to send civilian paraplegics from this Institute to the Paraplegic Rehabilitation Unit in Ste. Anne's Veterans' Hospital. Mrs. Davidson's technical dexterity in handling things and people has made it possible for these patients to look forward to useful and fuller lives. The part Captain John Counsell, President of the Canadian Paraplegics Society, has played in this work has been of major importance.

In the routine work of the neurosurgical service, there are deep-rooted skills and, as Professor Elton Mayo once said, "Science is rooted deep in skill and can only expand by the experimental and systematic development of an achieved skill. The successful sciences are consequently all of humble origin . . Science did not begin with elaborated and overwhelming systems and thence proceed to the study of facts. Its characteristic pedestrian step-by-step advance from lowly beginnings has the merit of consolidating its gains. Later advances do not ever completely vitiate earlier careful observation. Scientific method then has two parts, represented in medicine by the clinic and the laboratory. The two are interdependent; the one unfruitful without the other. The characteristic of the clinic is careful and patient attention to a complex situation, any part of which may suddenly discover unanticipated importance. That of the laboratory is experiment and logical deduction."

In these days of mounting costs of hospitalization, patients cannot be expected to meet the full expense of treatment in an Institution such as ours. This is an Institute in which every effort is made to give the patient the best in modern medical treatment, but also to gain new facts from the study of the patient.

I plead, therefore, for the recognition of the fact that scientific method in medicine must be applied to the clinic as well as to the laboratory. Both require special funds to make advance possible. Scientific observations and new skills are as important in the handling of patients as they are in the laboratory study of disease. Progress may be slow and far from dramatic but we must rely upon combined cooperative study to produce the final generalization, the eventual medical advance.

REPORT ON HOSPITALIZATION

DR. JOHN KERSHMAN

Executive Assistant

Measured in terms of functional purpose, the Hospital has had a highly successful year. There were 1752 patients admitted for a total of 34,455 days of hospital treatment; there were 5078 new and old patient visits in the Outdoor Clinic and 904 operations were performed.

Yet, the disheartening contrast between the work we are doing and the financial difficulty of continuing it remains unabated. This year there was some relief in the fact that the City of Montreal and the Province of Quebec substantially increased their annual grants and for this we are grateful. But even this was not sufficient to cover the cash deficit at the end of the year's operation.

Our requests for these increases were based on conditions prevailing in 1945 and 1946. We were assured at that time, by those best competent to advise us, that costs could go no higher, and in fact that there might be some recession. But, as every housewife and wage-earner knows, these hopes for stabilization have not been realized. Costs per patient per day, during 1947, exclusive of building and laboratory maintenance, were 22% higher than 1946 and 45% higher than 1945 They are still climbing and in the first few months of 1948 a marked increase is again apparent. As a result, the grants which we asked for and received are again inadequate to meet the needs. Furthermore, in one instance there has been no assurance that even these increases will continue to be forthcoming.

This dilemma is not peculiar to the Neurological Institute; all hospitals are facing a similar problem, but, in our own institution, the problem is heightened by several factors. The foremost difficulty is the much greater number of public and Q.P.C.A. patients that we care for in proportion to semi-private and private patients. This has been referred to in previous reports. During 1947, the bed occupancy was made up of 77% public patients of whom about one quarter were under Q.P.C.A., 12% were private and 11% semi-private. This is far different from the original plan in which a more balanced proportion of various groups of patients had been intended. But spatial arrangements are such that, in response to insistent demands, it has always been possible to accommodate still more patients in the public floors. At the same time, the arrangements for semi-private and private patients are more rigid and, although the comparative need has been just as great, there is much less elasticity in our capacity to admit them.

Since 1941, for example, there has been an increase in patient days from 20,482 to 34,455, a jump of nearly 14,000. Of this increase, 11,139 patient days — or 80% — were made up of public patients. How this has affected our income is shown by the following:

In 1935, the first full year of the hospital's activity, the income derived from room rates of private patients was 21% of the total hospital income; in 1941 it was 15% and last year it was down to 9%. On the other hand, in 1935, the income derived from ward rates charged to public paying patients was 20% of the total; in 1941 it was 27% and in 1947 it represented 39%

It is axiomatic that public patients have never paid for the cost of their ospital care. This is a tradition as peculiar to hospitals as the white colour of ıe nurses' uniforms and much older. It, undoubtedly, stems from the historical evelopment of the hospital as a place where only the poor and homeless sick ɔok refuge and were cared for wholly out of public and private charity.

Voluntary hospitals which are the backbone of our present system were reated and maintained by the generosity and public-spirited enterprise of small roups of people who undertook the responsibility of defraying the cost of caring ɔr the needy sick. But the economic realities of the present times have made this task of much greater proportions than could have been anticipated even five ears ago.

Of the many remedies that have been suggested, only a few need to be iscussed here. Indigent patients are supposed to be provided for by the Quebec 'ublic Charities Act which postulates that one-third of the cost be borne by ıe City or Municipality, one-third by the Provincial Government and one-third y the Hospital. It is true that the daily allowance from Government sources ⁄as increased about a year ago, but, at the present rate of costs, even this allowance :aves the hospital to carry more than two-thirds of the actual financial responsi- ility instead of the one-third it is supposed to carry.

In the past, hospitals have been loath to increase charges to patients and have nly done so as a last resort. Consequently, hospital rates have not gone up nearly ı proportion to the costs, nor have they increased in the same proportion as ther living costs. Further increases in rates may have to be made in the near ıture.

It has been pointed out in the Director's report that clinical deficits will ɔntinue to mount until we are able to build a new clinical wing by which the roportion of private and semi-private patients in the Neurological Institute ⁄ill be increased to a reasonable level. This would enable us to tear down the on-fireproof annex. It would call for a substantial outlay but only thus can the ospital portion of this Institute hope to balance its budget. We hope that the ssurance of our continued existence as a hospital means enough to this com- ıunity so that Government bodies and private individuals will help make it ossible.

REPORT OF THE REGISTRAR

Dr. J. Preston Robb

Once a year the figures pertaining to admissions and discharges are gathered ɔgether to determine the amount of work done by the various departments of ıe Institute. During 1947, there were 1752 admissions compared to 1871 in 946. There was a total of 34,456 hospital days, some 1065 less than in 1946. 'he chief reason for the decrease was the fact that the public wards were closed ɔr a period during the summer while they were being painted. It is worthy of ɔecial note in this report that the autopsy rate rose from 67.7% to 88.2% and ıat the number of operations increased from 864 to 904.

It would seem that the bed capacity for the Institute had reached a limit, :though the demand for beds has increased. Many patients that would formerly ıve been admitted are now being investigated in the Outpatient Department

or in the treatment clinic. Further, the great demand for emergency or urgent cases has prevented the admission of patients for clinical research. Each year it becomes increasingly apparent that more beds are needed for the investigation and treatment of neurological diseases.

The annual figures since the opening of the Institute are as follows:—

	Patients cared for	Hospital days	Average stay	Death rate	Autopsy rate	Operations
1934 (3 mos.)	190			5.21%	86.8%	92
1935	841	14928	17.8	6.29%	77.6%	348
1936	912	17667	19.4	5.18%	82.8%	456
1937	953	18315	19.2	5.18%	85.4%	508
1938	999	18856	18.9	4.95%	89.4%	608
1939	1079	19742	18.3	4.72%	72.1%	517
1940	1093	19428	17.8	6.79%	86.8%	600
1941	1179	20482	17.4	6.03%	88.5%	566
1942	1416	23939	16.9	4.53%	83.3%	700
1943	1623	29718	18.3	3.97%	77.0%	742
1944	1657	30501	18.4	5.1 %	65.0%	864
1945	1681	34223	21.4	4.28%	64.5%	955
1946	1871	35521	19.9	2.9 %	67.7%	864
1947	1752	34456	19.6	3.76%	88.2%	904

The work of the Outpatient Department has continued to expand. There were 1014 new cases seen and 3864 revisits, making a total of 1878 patients — an increase of 324 over the total for 1946. This figure does not include the patients seen by one of the neurologists in the syphilis clinic.

The work of the special neurological treatment clinic also has expanded, a total of 83 patients being treated. In all, there were 794 visits. Special therapy, such as the histamine treatment for multiple sclerosis, was administered and certain investigative procedures, such as lumbar punctures, were performed.

Outpatient Clinics are held five days of the week
in the Royal Victoria Hospital

Monday and Thursday	Neurology
Wednesday	Neurology (Epileptic)
Tuesday and Friday	Neurosurgery
Monday	Neuromuscular Diseases
Thursday	Neurosyphilis

	Neurology	Neurosurgery	Totals
New cases	628	386	1014
Revisits	3110	754	3864
	3738	1140	4878

REPORT OF THE NURSING SUPERVISOR

MISS EILEEN C. FLANAGAN

The Nursing Department has been very fortunate in having a full complement of nurses, nursing aides, and domestic staff, which has allowed us to carry out our duties and responsibilities with reasonable satisfaction to the patients, the doctors and the nurses themselves.

A great number of nurses from all over the world, who were out in the nited States for the meeting of the International Council of Nurses, visited the ıstitute, and expressed great appreciation of the help our staff were able to give em. Many had been isolated for so long, that they were intensely delighted ith every new idea, and every piece of new equipment they saw.

Our postgraduates, of whom there were thirty, came from England, Den- ark, Greece, the United States, Jamaica and South Africa as well as Canada. lany of these graduates were ex-service personnel.

We arranged an exchange visit between the Supervisor of our Operating oom, Miss E. MacRae, and Mrs. Verna Wilson, the Supervisor of Operating ooms, Barnes Hospital, St. Louis, with great profit and pleasure to both of them.

The number of special duty nurses in 1947 was 703, giving 5,667 nursing :riods, a drop of 200 nurses, and 1,398 periods over 1946.

We have been very grateful for the teaching given by the Medical Staff and :llows, and espec ally for the constant help given and interest shown by the ledical Staff in helping us to maintain and improve our nursing service.

DEPARTMENT OF SOCIAL SERVICE

MRS. ELABEL DAVIDSON

We have made some small gains in the Department of Social Service this :ar. With the increase in referral of patients from ward and clinic it is still ifficult to keep pace with the work, but it is with relief and pride, as well as a :cognition of its major importance, that we report an increase in staff; one social 'orker on the permanent staff and one through the Epileptic Study, and a full me clinic secretary. Already a better coordination of work has been effected.

The clinics are handicapped by a lack of space and privacy, but this lack is ɔt peculiar to the Outpatient Department. While we have continued to share ı the training of students from the McGill School of Social Work we have :en unable to provide a suitable place for them to work. With the school ıpervisor reporting the pressing need for student field work assignments and ıe value she attaches to the training to be had in the department, it is regrettable ıat space is so limiting a factor.

We have also had the postgraduate nurses for planned periods of instruction ıd observation. Our staff, in turn, has profited by participating in the lecture ɔurses arranged by the nursing instructor.

The increase in hospital rates, coming with the rapid rise in daily living ɔsts, has worked great hardship on many of our patients. Although last year :wer patients were admitted to the wards we had an increase in the number f patients applying for hospitalization under the Quebec Public Charities Act.)nly those on the lowest economic level received such assistance, as the muni- pal and provincial authorities have not yet revised the schedule of eligibility. Vhen a family of father, mother and three children with an income of $33.00 er week is expected to pay hospital bills at our present rates, it requires little nagination to reckon the loss in revenue to the hospital in unpaid accounts, or ıe greater loss, namely, a family's standard of living which must often be :duced to a point below a helath level. This is even harder for patients from utside the Province for whom no reciprocal arrangement for public assistance as been made by the Provinces.

Through our social research program, which has continued this year, we are trying to gain, both for ourselves and for the community, greater insight into the social component of certain neurological conditions. Those of us who have been engaged in these studies realize that we are pioneering; that we have few standards by which to measure our findings.

We have set May, 1949, as the date for completion of our Epileptic Study. With Mrs. Thomas in charge and Miss Bourque and Miss Belanger assisting, this seems a legitimate goal. Already there have been a number of what might be called by-products of this study. The growing interest in and a better understanding of the epileptic patient has resulted in staff members addressing professional social work associations, social agencies' staff members, church groups, employment and rehabilitation committees, the Neurological Section of the Medico-Chirurgical Society, and participating in radio programs in both French and English.

We are most appreciative of the continued support given us by the Provincial Ministry of Health in our work throughout the year.

Our survey of the paraplegic situation has also been used by the local multiple sclerosis unit in publicizing the incidence of this disease and the urgent need of support for medical research. It is our hope that social studies may be carried on concurrently with the medical research on multiple sclerosis so that we may know better how to help these patients.

This has been a brief review of some of the wider reaches of our year's work, but they all stem from our service to the individual patient of whom we have served 4595 this year. Helping a person to adjust to illness and its impact upon his daily living is not a simple task. What we bring to each depends not only upon our skill but upon our philosophy, our attitudes toward every living person, whether we are secretly intolerant of his weakness or conscious of his inner worth and strengths. This help may take a variety of forms, a kind of listening, and "awareness of things too gentle to proclaim themselves", or the step by step support to the patient striving for a "satisfying and socially effective life".

DEPARTMENT OF RADIOLOGY

Dr. Donald McRae

During the calendar year of 1947, 6608 roentgen examinations were performed using 31,371 films. Included in this total are 395 myelograms and 773 pneumograms.

The Monday, Tuesday and Friday colloquia in neuroradiology have been continued. In addition a seminar in neuroradiology was begun. It consisted of a lecture and a demonstration each week for a period of two months to supplement similar seminars in neuroanatomy and neurophysiology.

Dr. Eduardo Palma carried out an investigation of the massa intermedia, much of which was done in this department. Dr. J. L. Leger began a Fellowship in neuroradiology during this year. No diploma course students in radiology have been assigned to us but arrangements have been completed with the Royal Victoria Hospital whereby their internes in radiology will come to us for part of their training.

Preliminary work on the relationship of occipital horn asymmetry to cerebral dominance has been completed. A full scale project is being organized to study cerebral dominance in relation to ventricular asymmetry and to electroencephalographic asymmetry.

The department was taxed to the utmost by the 15.3% increase in the amount of work done. Most of the increase came from outpatients but there were slight increases in both myelograms and pneumograms. We must plan to increase our facilities by adding a third radiographic room. During 1947 the dark room was divided into dark and light rooms and new developing tanks were installed to double our processing capacity. The ease and rapidity with which wet films can now be viewed has been the subject of many favourable comments. It has shown us that wet-film reporting is feasible and will have to be done to speed up our service to the staff and to the patients. When we expand the department, the light room will have to be greatly enlarged. The ideal to strive for would be to report every examination before the patient left the department. This would obviate return visits on the part of the patient, would allow for a preliminary report to go to the ward or to the doctor's office with the patient, and would see the typewritten report in the doctor's hands within 24 hours.

During the year we had the invaluable association of Dr. D. G. Wollin who has joined the staff on a full-time basis. His presence has meant that a radiologist is present in the department at all times for consultation.

DEPARTMENT OF NEUROCHEMISTRY

DR. DONALD MCEACHERN
DR. K. A. C. ELLIOTT

Activities of the Laboratory cover two fields: routine clinical work and research activity. Both are exceedingly active although encompassed in small space. Some 6,816 chemical determinations were performed, including cerebrospinal fluid, blood and urine studies, gastric analysis, and basal metabolic rates.

An innovation this year has been the full-time appointment of a technician to operate the Ward Laboratories of the Institute as a kind of field agent of our Main Laboratory. Since December 15, 1947, she has been drawing all blood samples which are to be sent to the Medical Laboratory or the Neurochemistry Laboratory for chemical determinations. She also takes all the bloods for Wassermann tests, and these have averaged about 122 per month. This saves the internes much valuable time and makes for more speedy and efficient service.

The main work of the Laboratory has been devoted to an intensive study of the neurochemical factors involved in the epileptic discharge. This work has been done in closest cooperation with other departments, viz., Neurophysiology, Neuropathology, Electroencephalography and the Clinical Services. It is supported by a generous grant from the Rockefeller Foundation.

Dr. Elliott has completed a study, with Dr. Penfield, on the energy metabolism of human focal epileptogenic tissue. This work necessitated a concurrent study of the metabolism of brain from different species of animals. Practical methods have been worked out for the preparation and dispensation of a bicarbonate-containing solution closely resembling spinal fluid. This solution, after trials on animals by Dr. Jasper and Dr. Chandy, is now being used in the operating rooms of the Institute.

In collaboration with Dr. Jasper, studies were completed on the effects of different irrigation fluids on the pial blood vessels and the pH of the cortex.

Mrs. Marion Birmingham, Mr. Francisco Moya and Mr. James Webb are conducting *in vitro* studies under Dr. Elliott's direction. Mrs. Birmingham is nearing the end of her investigations on the effects of pH and bicarbonate on the metabolism of brain tissue. Mr. Webb completed a study of acetic acid in brain metabolism and is now investigating *in vitro* effects of convulsant and anti-convulsant drugs. Mr. Moya is studying factors which affect aerobic glycolysis in brain tissue. Mrs. Norah Henderson has proved an able assistant.

Dr. McEachern has had two senior Fellows working with him on problems of epilepsy. Dr. Tower, in an exhaustive study, has demonstrated the appearance of acetylcholine in cerebrospinal fluid in relation to seizures. Dr. Kelen has done interesting work on the effect of DFP. and fluoroacetate on the cat's brain. Dr. Rabinovitch has continued his work on the effect of Wheat Germ fractions on neuromuscular disease. It seems that at least one type of muscle distrophy, which commences at about the climacteric age, may respond to these substances. A study of the fate of injected cytochrome C. has been carried out with Dr. Elliott and Dr. Rabinovitch.

In collaboration with Dr. Douglas Waugh, Department of Pathology, a special study has been carried out in a case of virilism due to ovarian tumor. With Dr. Parnell, of the Department of Medicine, a study has been made of the relationship of hyperthyroidism to myasthenia gravis.

DEPARTMENT OF ELECTROENCEPHALOGRAPHY

DR. HERBERT H. JASPER

The work of this department has included the successful completion of 2197 clinical E.E.G. examinations during the past year. Many of these examinations were long and complicated procedures, with additional tests such as metrazol, insulin, etc., carried out in the attempt to clarify initially obscure results. Nearly one half of the patients examined are still those with epilepsy, with brain tumours coming next in the list.

Epilepsy	983
Tumours	240
Head Injuries	168
Mental Disorders	120
Vascular Lesions	115
Headache	85
Polioencephalitis	63
Brain Abscess	10
Operating Room Electrocorticograms	47
Miscellaneous	250
Deferred	116

The laboratories are now operating at approximately maximum capacity with existing techniques and equipment. Examination procedures are retarded somewhat, however, by the instructional activities of the department. There is an increasingly large number of doctors and technicians coming to the department for training purposes.

The use of slow intravenous metrazol for activation of foci of epileptic discharge has been continued with moderately satisfactory results in many cases (100 during 1947) We find, however, that the optimum dose and rate of administration to produce a just minimal activation, satisfactory for E.E.G. localization and for observation of the onset of a clinical seizure (without a major attack), are difficult of realization. The wide individual differences in sensitivity to metrazol, with some epileptic patients showing unusually high resistance to this drug, have limited its general usefulness to some extent. With further modification if this mode of administration, some of these difficulties may be overcome, but a still better method for the activation of epileptic discharge for diagnostic purposes is sought after.

A technique has been developed, in collaboration with Dr. John Hunter, for cinematography of epileptic patients simultaneous with their E.E.G. tracing during the induction of seizures with metrazol. The collection of films being assembled provides valuable material for the detailed analysis of the pattern of epileptic attack in patients with different forms of epilepsy, furnishes a method of precise correlation between the clinical and E.E.G. manifestations of epileptic discharge and gives illustrative material for teaching purposes.

Considerable progress was made in the application of electromyography to the diagnosis of nerve injuries and neuromuscular diseases, with the able assistance of Mrs. Miller Ballem, in collaboration with Drs. Rabinovitch and McEachern. In collaboration with Dr. Moseley, it was found that electromyographic recording of the stretch reflex or its absence in the supraspinatus muscle may be of assistance in the diagnosis of rupture of the supraspinatus tendon.

DEPARTMENT OF NEUROPATHOLOGY

Dr. William V Cone

In the twelve months ending December 31, 1947, the Department studied 636 cases. Of these, 538 were surgical specimens; 98 were autopsies of which 8 cases were submitted from outside sources.

These statistics show a somewhat lesser number of surgical specimens than in the preceding year, while, on the other hand, the number of autopsies is greater this year than last. The amount of material passing through the laboratory is roughly the same for the two preceding twelve month periods.

In 1947, the facilities of the laboratory were used by Fellows representing all departments of the Institute. Dr. W K. Welch completed his studies of human glioblastoma transplanted to guinea pigs. Dr. William Meacham, visiting Fellow, contributed a critical review of the results of surgical removals in the sensori-motor cortex. Dr. Harry Steelman, Neuropathological Fellow, devised a new scheme of craniocerebral topography. Correlations of initial phenomena in epilepsy were carried on by Dr. Kristian Kristiansen. Dr. John I. Bates studied the effects of certain intravital dyes in induced and transplanted tumors. Histological review of all tumors of the astrocytoma and, hitherto, unclassified glioma groups, as seen in the Institute for the past ten years, was begun by Dr. Clarence Greene. Drs. John Hunter, Norman Sloan and Robert S. Knighton carried out, in the laboratory, their histological studies relating to cerebral function. A combined anatomic and radiographic study of the massa intermedia was made by Dr. Eduardo Palma. Dr. Josef Pavrovsky completed a clinical and pathological

survey of the meningeal tumors. Work, begun by Dr. Jacob Chandy, dealing with exposure effects on the cerebral cortex was continued by Dr. Francis O'Brien. Histopathological studies in neuromuscular disorders are being carried on by Dr. Reuben Rabinovitch. Dr. C. Miller Fisher and Dr. Ram Ginde have assisted in the routine work of the laboratory.

DEPARTMENT OF NEUROPHYSIOLOGY

DR. HERBERT JASPER, *Neurophysiologist*

PROFESSOR BORIS BABKIN, *Associate Neurophysiologist*

A most important development in the work of this department has been the association of Professor Babkin who has conducted an intensive program of research with Dr. Thomas Speakman on the influence of the local areas of the cerebral cortex upon certain functions of the autonomic nervous system. Not only have the results of these experiments been of considerable importance and interest, but Professor Babkin, with his inimitable friendly good humor, has been warmly welcomed by all workers in this laboratory.

Research into the functional interrelations between cortex and thalamus has been continued with Dr. John Hunter and Dr. Robert Knighton, following the departure of Dr. Jan Droogleever Fortuyn to Amsterdam. Dr. Hunter has placed particular emphasis on studies of thalamic stimulation in the chronic animal with implanted electrodes. Dr. Knighton has been working on the details of thalamocortical function with special reference to the frontal lobes.

Analysis of the function of the cingulate gyrus in relation to the autonomic nervous system and to the suppressor areas of the cortex is being carried out by Dr. Norman Sloan.

With Dr. K. A. C. Elliott, we have completed our studies of the pH and vascular changes of the exposed cortex as affected by irrigation with buffered and unbuffered physiological salt solutions of different composition. This is part of the series of studies of the reaction of the brain to exposure under the specific direction of Dr. Penfield, which has included other experiments by Dr. J. Chandy. More recently, the entire problem has been receiving another approach in the experiments of Dr. Francis O'Brien.

Methods for the preparation and dispensing of sterile bicarbonate buffered physiological salt solutions for general use in brain surgery have been developed by Dr. Elliott and are being given trial by Miss Roach and others in these laboratories.

With Dr. Rasmussen, Dr. Ziegler has completed a study of the effects of local pressure upon the electrical activity and excitability of the cerebral cortex.

Following the completion of the studies of tumour transplants by Dr. Welch, Drs. Kershman and Bates have undertaken an extensive study of experimentally induced brain tumours in mice, with the aid of the Society for Cancer Research.

In collaboration with Dr. Gabriel Mazars, experimental studies of the bilateral relationships and the thalamic representation of the temporal lobes and island of Reil in cats and monkeys have been carried out. Studies of the prefrential paths of spread of epileptic discharge from various parts of the temporal lobes and island were also made. With Dr. William Gerber, attempts

were made to induce focal epileptogenic lesions in monkeys in various cortical areas other than the motor cortex, to study the E.E.G. changes and patterns of seizures in these animals with known foci.

For the above experiments, there were 798 procedures carried out, 170 of which were sterile operations. This represents a still further increase in the activities of this laboratory over preceding years. Considerable credit is due Miss Mary Roach for the efficient management of the preparations for this work throughout the year.

Finally, we are pleased to announce the birth of three monkeys during the past year, the first in the history of the Institute. This speaks well for the care being given our animals by Mr. George Stephen.

DEPARTMENT OF NEUROANATOMY

DR. FRANCIS MCNAUGHTON

This year has seen the new Sixth Floor Laboratory completed, equipped, and in operation with a full-time technician. The formal opening will be held at the beginning of June, when Dr. Jan Jansen, Professor of Anatomy at the University of Oslo, will give an Inaugural Lecture on the Anatomy of the Cerebellum.

The laboratory has continued its teaching functions throughout the year, beginning with classes for Fellowship candidates and the undergraduate course in Neuroanatomy (assisted by Dr. A. A. Bailey and Dr John Bates). The regular lecture-demonstrations for the Seminar Group in Neuroanatomy have been given through the winter months, correlated closely with Dr. Jasper's Seminar in Neurophysiology. An active brain modelling group, including some fifteen Fellows and undergraduate students met weekly from November until March and did excellent work.

In January, Dr. Louis Hausman of Cornell paid us a one-day visit and gave a valuable discussion and demonstration of his methods of teaching brain modelling.

As Fellow in this Department, Dr. Li has been studying the normal anatomy of the human brain stem and diencephalon, while Dr. Greene is investigating new methods for staining nerves in the meninges. John Meyer has continued his clinico-pathological studies of diencephalic lesions in man. David Lewis has started a comparative study of nerve cells and glia.

It is hoped that both in teaching and in research, neuroanatomy will contribute its share to a greater understanding of the nervous system, working closely with the neurophysiologist and the pathologist.

DEPARTMENT OF PHOTOGRAPHY

DR. JOHN KERSHMAN

The following work was done during 1947

Total number of photographs	2,715
Total number of operation photographs	420
Total number of patient photographs	395
Photomicrographs	473
Miscellaneous	1,427

The greatest increase over previous years has been in the number of photomicrographs and gross pathological specimens. This includes not only routine pathological work but reflects the increasing use of the department by research fellows doing investigative work.

The addition of an assistant technician has eased the strain and improved the quality of the work.

FELLOWS' LIBRARY

DR. FRANCIS MCNAUGHTON

The Fellows' Library continues to be a focal point in the day and night activities of the Institute. While this Library is not in any sense complete, we now have available, through our own collection and the McGill Medical Library, and by quick photostat and microfilm service with American libraries, practically every medical publication, old and new.

During the past year, some eighty new books have been added, either by purchase or by gift. Several new neurological journals have been added to our list, and some gaps in our journal volumes have been filled. An increase in the budget has enabled us to obtain certain books and journals not available during war years, though others are still being sought.

The Library has received valuable gifts during the past year from Dr. W. G. Penfield, Dr. Allan Bailey, Dr. Palma, Mr. H. H. Bell and from the library of the late Dr. Fred H. Mackay. As usual, we are most grateful for the cooperation of Dr. Stehle, Miss Gordon, and the Medical Library Staff. Our own librarian, Mrs. E. Christie, should be congratulated for her efficient handling of the library.

THE FELLOWS' SOCIETY

DR. H. F. STEELMAN, *President*

DR. F. H. O'BRIEN, *Vice-President*

DR. W. F. GERBER, *Secretary-Treasurer*

The Society has again increased in size this year and our meetings have been planned to meet new needs as well as old. In addition to the regular formal meetings, a number of informal ones were held, providing opportunity for the Fellows, representing many different countries, to exchange ideas and become better acquainted both as individuals and as fellow workers.

Early in the year, a meeting was devoted to a round table discussion in which each man engaged in research this year gave a brief synopsis of his work and progress to date.

The formal Society Meetings represented a wide selection of pertinent topics in neurology and neurosurgery, including a series of talks and demonstrations in neuropathology arranged by Dr. Steelman and Dr. O'Brien.

The speakers for the year were:

DR. W. GRANT, Los Angeles, California.
"Graphic Methods in the Neurological Examination".

DR. J. PAVROVSKY, Prague, Czechoslovakia.
"Some Pathological Aspects of Tumours of the Meninges".

DR. M. FALCONER, Dunedin, New Zealand.
The Causes of Low Back Pain"

DR. K. KRISTIANSEN, Oslo, Norway.
"Percutaneous Arteriography in Acute Head Injuries".

DR. G. MAZARS, Paris, France.
"Neurosurgery in France during the War".

DR. C. F. MUNCH-PETERSON, Aarhus, Denmark.
"Cerebrospinal Fluid Chemistry in Certain Neurological Conditions".

DR. R. MALMROS, Aarhus, Denmark.
"Neurosurgical Treatment in Deformities of the Spine".

DR. J. TYHURST, Montreal.
"Psychiatric Methods of Investigation"

DR. J. PRESTON ROBB, Montreal.
"Aphasia and Cortical Representation".

DR. WENDELL KRIEG, Chicago, Ill.
"The Hypothalamic Nuclei in the Primate"

DR. O. HIRSCH, Boston, Mass.
"Endonasal Pituitary Surgery"

DR. W. FRANCIS, Montreal.
"Osler and the Osler Memorial Library".

DR. M. POLLACK, Buenos Aires, Argentina.
"Rio Hortegas' Classification of Tumours"

DR. A. J. RHODES, Toronto, Ont.
"Neurotropic Infections of the Central Nervous System".

DR. F. L. MCNAUGHTON, Montreal.
"Use of a Neurological Library".

DR. L. M. EATON, Rochester, Minn.
"Myasthenia Gravis".

DR. J. ZIEGLER, Montreal.
"The Effects of Graded Mechanical Pressure on the Cerebral Cortex".

DR. DONALD TOWER, Montreal.
"Acetylcholine and Neuronal Activity"

DR. WILDER PENFIELD, Montreal.
"Neuroglia and Neuroglial Reactions".

DR. ARTHUR ELVIDGE, Montreal.
"The Gliomas".

DR. K. HENNER, Prague, Czechoslovakia.
"Differences in the Neurological Examination in Different Countries".

DR. A. TORKILDSEN, Oslo, Norway.
"Spontaneous Rupture of the Cerebral Ventricles and its Significance".

MONTREAL NEUROLOGICAL SOCIETY

OFFICERS FOR 1947-1948

Chairman ..... DR. JOHN KERSHMAN
Vice-Chairman ..... DR. DONALD MCRAE
Secretary-Treasurer ..... DR. PRESTON ROBB

Meetings of the Montreal Neurological Society were held weekly from the first of October to the end of May, inclusive. An interesting selection of clinical problems was presented at the Clinical Conferences which were held at the Neurological Institute, the Montreal General Hospital, Hotel Dieu, Notre Dame Hospital and the Queen Mary Veterans' Hospital.

The following addresses were given before the Society during the year 1947-48.

PROFESSOR WENDEL KRIEG, Northwestern University Medical School.
"The Medullary Center of the Human Cerebrum as Revealed by Dissection"

DR. W. PENFIELD.
"Sherrington's Observations on the Cerebral Cortex".

DR. H. HOFF, McGill University
"Sherrington and the Doctrine of the Reflex".

DR. WM. GIBSON.
"Sherrington's Contribution to English Literature".

DR. W PENFIELD.
"Observations on the Cerebral Cortex of Man"

DR. R. RABINOVITCH.
"Contributions of Clovis Vincent to Neurology".

DR. ANDREW J. RHODES, Connaught Medical Research Laboratories, Toronto.
"Neurotropic Infections of the Nervous System".

DR. J. H. QUASTEL, McGill University.
"Role of Oxygen in Metabolism and Function of the Central Nervous System".

DR. J. W BOYES, McGill University.
"Hereditary Aspects of Landouzy-Dejerine Muscular Dystrophy".

DR. L. M. EATON, Mayo Clinic.
"Surgical Treatment of Myasthenia Gravis"

DR. HERBERT JASPER and DR. JOHN HUNTER.
"The Use of Metrazol in the Activation of Seizures in Epileptic Patients; Cinematographic and E.E.G. Studies"

DR. THOMAS SPEAKMAN and DR. BORIS BABKIN.
"Cortical Influence on Gastric Motility and Respiration".

DR. DONALD TOWER.
"Experimental and Clinical Observations on the Role of Acetylcholine in Craniocerebral Trauma and Epilepsy".

DR. ARNE TORKILDSEN, Oslo University Clinic.
"Experiences with Ventriculocisternostomy".

DR. A. W. ADSON, Mayo Clinic.
"Visual Changes and Impairment of Perimetric Fields due to Vascular and Anomalous Lesions in the Chiasmal Region".

This year, for the first time, combined meetings with the Psychiatric Section of the Montreal Medico-Chirurgical Society were held monthly, which took the form of addresses or symposiums on subjects of interest to both groups. The following addresses were given at these meetings:

DR. GOSTA RYLANDER, Royal Caroline Institute, Stockholm.
"Personality Changes after Operations on the Frontal Lobes".

DR. ROBERT CLEGHORN, Allan Memorial Institute.
"Personal Transformations occurring with Adrenal Tumors".

The following symposiums were held:

"Autonomic Functions of the Cerebral Cortex", at which the speakers were Drs. B. P. Babkin, N. Sloan, G. J. Mazars, R. Malmo and C. Shagass.

"Surgical Treatment of Hypertension", with Dr. C. Miller Fisher as the principal speaker. Dr. John Palmer, Dr. Karl Stern and Dr. W. V. Cone discussed various aspects of the problem.

"Diseases of the Basal Ganglia", with Dr. A. W. Young and Dr. Karl Stern participating.

"Neurological, Metabolic and Psychiatric Aspects of Headache", at which Drs. F. L. McNaughton, B. Rose and W. D. Ross participated.

HUGHLINGS JACKSON MEMORIAL LECTURES OF THE MONTREAL NEUROLOGICAL INSTITUTE

In 1935, on the occasion of the 100th anniversary of Hughlings Jackson's birthday, the first Memorial Lecture was held. It was appropriate that the first lecturer was Dr. Penfield. Each Spring, since then, the Annual Hughlings Jackson Memorial Lecture has been given by someone who has made an outstanding contribution in the field of neurology. This lecture has come to be one of the outstanding events in the life of the Institute and for the first time in this report, we list these distinguished lecturers.

1935 DR. WILDER PENFIELD
"Epilepsy and Surgical Therapy".

1937 DR. KARL S. LASHLEY
"Factors Limiting Improvement after Central Nervous Injuries".

1938 DR. DETLEV W. BRONK
"Nerve Cells and Synapses in the Regulation of Organic Functions".

1939 DR. WALTER B. CANNON
"A Law of Denervation"

1940 Dr. Charles H. Best
"The Factors Affecting the Liberation of Insulin from the Pancreas".

1941 Dr. Stephen Walter Ranson
"Experimental Studies of the Corpus Striatum".

1942 Dr. Edgar Douglas Adrian
"Sensory Areas of the Brain".

1943 Dr. Philip Bard
"Re-representation as a Principle of Central Nervous Organization"

1944 Dr. Percival Bailey
"The Cortical Organization of the Chimpanzee's Brain"

1945 Dr. Stanley Cobb
"Some Observations on Neurocirculatory Asthenia".

1946 Dr. Otto Loewi
"Problems Connected with the Effects of Nervous Impulse".

1947 Sir Henry Dale
"Chemical Transmission and Central Synapses".

1948 Dr. Derek Denny-Brown
"Disorganization of Motor Function Resulting from Cerebral Lesions".

CLINICAL APPOINTMENTS AND FELLOWSHIPS

The following positions are available:

Interne or Assistant Resident in Neurosurgery — one year's duration — available January 1st and July 1st.

Resident in Neurosurgery — This position is of one or two years' duration and no candidate is considered unless he has had previous experience on the Neurosurgical Service and in the laboratory.

Interne in Neurology — Six to twelve months' duration — Available January 1st and July 1st.

Resident in Neurology — This position is of six to twelve months' duration and no candidate is considered unless he has had previous experience on the Neurological Service.

Fellowship in Neuropathology — Twelve months' duration — available July 1st to those who have already worked in the laboratory.

Senior Fellowship in Clinical Electroencephalography — six months' duration — available January 1st and July 1st.

Junior Fellowship in Clinical Electroencephalography — six months' duration — available January 1st and July 1st.

The Diploma in Neurosurgery, McGill University, requires at least four years of study including periods of investigative work and neurology

The Diploma in Neurology, McGill University, requires at least three years of study including periods of investigative work, neurosurgery and psychiatry.

Applicants for Clinical Services are preferred who have a speaking knowledge of the French language.

COURSES OF INSTRUCTION

UNDERGRADUATE

The Department of Neurology and Neurosurgery cooperates intimately with the Departments of Medicine, Surgery, Pathology and Radiology in their undergraduate teaching. Thus the teaching of neurology, neurosurgery, neuropathology and neurological radiology is carried out as part of the regular course planned by the Chairman of each of the above departments.

GRADUATE

In the Faculty of Graduate Studies and Research, courses are offered leading to the degrees of Master of Science and Doctor of Philosophy. Throughout the year, the following elective courses are given for graduate students, fellows and members of the house staff, and are open to undergraduates by arrangement.

A. SEMINAR IN NEUROANATOMY — 4 hours weekly (12 weeks).

1. Lectures, demonstration and discussion.
2. Construction of brain model by selected group.

Two evenings, beginning in November . . . . . Dr. McNaughton

B. SEMINAR IN NEUROPHYSIOLOGY — 3 hours weekly (12 weeks).
Laboratory demonstrations, lectures and discussions. Mondays, 5-6 and 8-10 p.m. Beginning in November..... Drs. Jasper and Babkin

C. COLLOQUIUM IN CLINICAL NEUROLOGY — 2 hours weekly.
Clinics and lectures. Wednesdays, 5 p.m. ..... Dr. McNaughton

D. COLLOQUIUM IN NEUROSURGERY AND ELECTROENCEPHALOGRAPHY — 1 hour weekly.
Fridays, 4 p.m. ..... Drs. Penfield and Jasper

E. SEMINAR IN NEUROPATHOLOGY — 1 hour (52 weeks).
Gross and microscopic demonstration to be supplemented by collateral work.
Fridays, 5 p.m. ..... Drs. Cone and Penfield

F. NEUROCHEMICAL BASIS OF NEUROLOGY AND PSYCHIATRY — 1 hour weekly.
10 lectures — Allan Memorial Institute ..... Dr. K. A. C. Elliott
5 laboratory exercises — Montreal Neurological Institute. Dr McEachern

G. COLLOQUIUM IN EXPERIMENTAL AND CLINICAL NEUROLOGY — 1 hour.
Discussions and lectures before Fellows' Society ..... Dr. Robb

H. COLLOQUIUM IN NEUROLOGICAL ROENTGENOLOGY — 1 hour weekly.
Mondays, 9 a.m. ..... Dr. McRae

DONATIONS

1947-48

Anonymous $25,000.00
To Multiple Sclerosis Fund, for research in multiple sclerosis.

From Mr. I. W. Killam 713.34
For purchase of soundscriber.

From Mrs. H. A. Springle 400.00
For Hobart Anderdon Springle Memorial Fund.

From Mrs. H. A. Springle 250.00
For Hobart Anderdon Springle Memorial Fund.

From Mrs. William Bloom 100.00
For Miscellaneous Contributions Fund.

From Mr. William Bloom 50.00
For Miscellaneous Contributions Fund.

From Miss Riva Handler 5.00
For Clinical Relief and Transfusion Fund.

To the Social Service Department

Mrs. Ross Hutchins ..... $ 100.00
Dr. Francis L. McNaughton 50.00
Rotary Club of Montreal 30.00
For appliances for crippled patient.
Health Department, Province of Quebec 4,000.00
For epileptic study.

PUBLICATIONS

1947-48

DR. ROMA AMYOT:

La Santé et Le Monde. (Bulletin) L'Union Médicale du Canada, 76:121 (Février, 1947).

Un antithyroïdien de Synthèse: l'Amino Thiazol. (Editorial) L'Union Médicale du Canada, 76:185 (Février, 1947).

Où Conduisent les Tendances Actuelles de la Psychiatrie? (Bulletin) L'Union Médicale du Canada, 76:711 (Juin, 1947).

Les Oeuvres Ecrites et le Journalisme en Médecine. (Hommage au Collège des Médecins et Chirurgiens). L'Union Médicale du Canada, 76:922 (Août, 1947).

Le Traitement de l'Hyperthyroïdie par l'Iode Radioactif. (Editorial) L'Union Médicale du Canada, 76:1230 (Octobre, 1947).

La Société Médicale de Montréal de 1871 à 1887. Premier Terme de Ses Activités. Annuaire de la Société Médicale de Montréal 1947, p. 45 (Mai, 1947).

DR. CLAUDE BERTRAND:

Les Céphalées: Une Classification Du Point de Vue Neurochirurgical. La Société Médicale de Montréal. January 20, 1948.

MRS. MARION BIRMINGHAM:

with DR. K. A. C. ELLIOTT

Effects of pH and Bicarbonate on Brain Tissue Respiration and Anaerobic Glycolysis. Federation Proc. 7:146, 1948.

DR. HAROLD ELLIOTT:

Ten Commandments for the Paraplegic. The Caliper. September, 1947.

Prefrontal Lobotomy with a Report of a Case with Intractable Pain. Bulletin — Medical Services, Department of Veterans' Affairs, March, 1948.

DR. K. A. C. ELLIOTT:

Metabolism of Cerebral Cortex from Different Areas and Various Animals and from Epileptic Patients. Federation Proc. 7:153, 1948.

Neurochemistry. McGill Medical Journal. 16:293-298, 1947.
See Dr. Herbert Jasper, joint author.

DR. ARTHUR ELVIDGE:

The Post-Traumatic Convulsive and Allied States. In Injuries of the Skull, Brain and Spinal Cord. Samuel Brock, ed., 3rd ed., Baltimore, Williams and Wilkins, 1948, chap. 11.

DR. W. C. GIBSON:

The Diagnostic Problem in Poliomyelitis. Canad. M.A.J. 57:531-536, 1947.

with H. G. KELLEY and J. F. MEAKINS

Cerebral Air Embolism following Artificial Pneumothorax; Treatment with Prolonged Inhalation of Oxygen. Canad. M.A.J. 56:388-391, 1947.

DR. HERBERT JASPER:

Electroencephalography in Epilepsy. In Epilepsy, Hoch and Knight, ed., New York, Grune and Stratton, 1947.

Integration and Disintegration of Motor Units: Unipolar Electromyography in Neuromuscular Diseases. Federation Proc. 6:137, 1947.

with WILLIAM O. FORDE

The R.C.A.M.C. Electromyograph Mark iii. Canad. J. Research, E. 25:100-110, 1947.

with ALFRED POPE, ARTHUR A. MORRIS, K. A. C. ELLIOTT and WILDER PENFIELD

Histochemical and Action Potential Studies on Epileptogenic Areas of Cerebral Cortex in Man and the Monkey. A. Research Nerv. & Ment. Dis., Proc. (1946) 26:218-233, 1947.

See Dr. Wilder Penfield, joint author.

R. ANDREW KELEN:

A Case of Cavernous Sinus Thrombosis with Recovery. Canad. M.A.J. 57: 578, 1947.

R. EMILE LEGRAND:

Horizons Neuropsychiatriques. Bulletin de la Faculté de Médecine de l'Université de Montréal (November) 1947.

R. DONALD MCEACHERN:

The Diagnosis and Treatment of Epilepsy. Postgraduate Medicine 2:251-260, 1947.
Further Trends in Research. Proceedings of the Massachusetts General Hospital Conference on Myasthenia Gravis, October, 1947.

Some Speculations Concerning Myasthenia Gravis. McGill Medical Journal, 16:539, 1947.

R. WILDER PENFIELD:

Some Observations on the Cerebral Cortex of Man. Proc. Roy. Soc. B. 134:329-347, 1947.

with THEODORE RASMUSSEN

Further Studies of the Sensory and Motor Cerebral Cortex of Man. Federation Proc. 6:452-460, 1947.

with HARRY STEELMAN

The Treatment of Focal Epilepsy by Cortical Excision. Ann. Surg. 126:740-762, 1947.

with HERBERT JASPER

Highest Level Seizures. A. Research Nerv. & Ment. Dis., Proc. (1946), 26:252-271, 1947.

See Dr. Herbert Jasper, joint author.

R. REUBEN RABINOVITCH:

with K. A. C. ELLIOTT and DONALD MCEACHERN

Cytochrome C: Intravenous Administration in Man. J. Lab. & Clin. Med. 33: 294, 1948.

R. THEODORE B. RASMUSSEN:

See Dr. Wilder Penfield, joint author.

R. J. PRESTON ROBB:

A Review of Experimental and Clinical Studies on the Function of the Cerebral Cortex as Related to Speech. McGill Medical Journal, 16:547-556, 1947.

R. H. STEELMAN:

The History of Epilepsy. McGill Medical Journal, 16: 557-564, 1947.
See Dr. Wilder Penfield, joint author.

R. DONALD B. TOWER:

with DONALD MCEACHERN

Experiences with the "Venus" Heart Method for Determining Acetylcholine. Canad. J. Research, 26: No. 2, April, 1948.

CLASSIFICATION OF DISEASES

Nervous system generally:

Neurosyphilis	34
Multiple sclerosis	55
Motor neurone disease	12
Myasthenia gravis	7

Meninges:

Meningocoele or myelomeningocoele	28
Chronic adhesive arachnoiditis	10
Acute purulent meningitis	12
Tuberculous meningitis	9
Acute aseptic meningitis	5
Spontaneous subarachnoid haemorrhage	2
Post-traumatic headache	13
Other headaches	25
Subdural haematoma	30
Epidural haematoma	6
Epidural or subdural abscess	4

Brain:

Congenital anomalies	13
Hydrocephalus	19
Birth injury of the brain	13
Brain abscess (tuberculoma)	6
Cerebral concussion	33
Cerebral contusion and/or laceration	59
Epilepsy	270
Migraine	7
Encephalopathy, chronic and of undetermined etiology	7
Paralysis agitans	12
Cerebral arteriosclerosis	5
Cerebral haemorrhage, thrombosis or embolism	44
Intracranial aneurysm	17
Cerebral atrophy	10
Encephalitis	9
Narcolepsy	2
Stenosis of aqueduct of Sylvius	4

Tumours of the Nervous System:

Glioma	98
Perineurial fibroblastoma	12
Meningeal fibroblastoma	19
Pituitary adenoma	10
Craniopharyngioma	9
Tuberculoma	2
Miscellaneous tumour	22
Unclassified tumour	2
Unverified tumour and tumour suspect	11
Secondary tumour of brain and spinal cord	30
Haemangioma	10

Spinal Cord:

Chronic myelopathy	6
Dorsal lateral sclerosis	7
Compression of the spinal cord	22
Vascular lesion of the cord	4
Syringomyelia	2
Poliomyelitis	3
Haematomyelia	1

Cranial and Peripheral Nerves:

Lesions of the optic nerves	10
Trigeminal neuralgia	41
Peripheral facial palsy	4
Meniere's syndrome	8
Lesions of the brachial plexus and branches	9
Multiple neuritis	10
Other neuralgias	3
Traumatic peripheral nerve lesions	1
Neuropathy of undetermined etiology	2

Mental Diseases:

Mental deficiency	4
Alcohol or drug addiction	13
Psychoneurosis	69
Manic-depressive psychosis	5
Schizophrenia	4
Miscellaneous	11

Other Systems and Miscellaneous:

Skull defect	10
Herniation of the intervertebral disc (cervical)	33
Herniation of the intervertebral disc (lumbar)	230
Fracture of the skull	90
Fracture and/or dislocation of the vertebral column	50
Gun-shot wound of the head	10
Gun-shot wound of the spine	2
Lacerations, contusions, abrasions and/or haematomas	10
Intractable pain	13

Diseases of the Body as a Whole:

Hypertension	54
Diseases of the cardiovascular system	4
Diseases of the respiratory system	7
Diseases of the gastro-intestinal system	4
Diseases of the genito-urinary system	6
Diseases of the endocrine system	9
Diseases of the locomotor and integumentary system	25
Diseases of the eyes, ears, nose and throat	6
Low back pain	38
Causalgia	6
Miscellaneous	12
Diagnosis deferred	16
Paget's disease	4
Muscular dystrophy	8

CLASSIFICATION OF OPERATIONS

Craniotomy

osteoplastic, miscellaneous	5
myoplastic, miscellaneous	7
and biopsy	3
and decompression	11
and drainage of abscess	9
and drainage of subdural haematoma	20
and drainage of extradural haematoma	7
and excision of cicatrix	24
and excision of focal area of brain	9
and exploration	17
and obliteration of aneurysm	2
and obliteration of cyst	4
and plastic repair of dura	2
and plastic repair of skull	2

and removal of adhesions	2
and removal of tumour	115
and rhizotomy	14
and sinusectomy	4
and sinusotomy	2
and lobotomy	11
Trepanations or craniocentesis	13
and aspiration of cyst	3
and biopsy	10
and drainage subdural space	12
and placement of electrodes	3
and subdural insufflation	3
and ventriculography	8
Elevation of depressed skull fracture	20
Plastic repair skull defect — tantalum	8
Plastic repair skull defect — bone	3
Suture of lacerated wound of scalp	12
Ventriculocisternostomy	5
Ventriculovenostomy	11
Ventriculostomy	2
Laminectomy or hemilaminectomy	22
and anterolateral chordotomy	7
and decompression spinal cord	3
and exploration	5
and removal of tumor	20
and rhizotomy	8
and spinal fusion (Hibbs)	8
and spinal fusion (bone graft)	19
and discoidectomy	155
and cervical discoidectomy	14
Sympathectomy for hypertension	31
Sympathectomy, miscellaneous	3
Ganglioneurectomy	1
Plastic repair of cranium bifidum	6
Plastic repair of spina bifida	13
Cerebral arteriography	25
Ligation of artery	5
Exploration of nerve	2
Nerve suture	2
Revision of wounds	37
Reopening of wound with evacuation of blood clot	9
Section of scalenus anticus muscle	2
Plaster cast	58
Miscellaneous	66
TOTAL	904

CHIEF DIAGNOSES IN FATAL CASES

Intracranial tumour	33
Craniocerebral injury	12
Subdural haematoma	9
Cerebral haemorrhage and thrombosis	7
Tuberculous meningitis	7
Acute purulent meningitis	5
Ruptured congenital aneurysm	5
Traumatic lesion of spinal cord	3
Stenosis of aqueduct of Sylvius	3
Gun-shot wound of brain	3
Epilepsy	2
Acute encephalitis	1
Tuberculoma	1
Epidural haemorrhage	1
Chronic adhesive arachnoiditis	1
Arnold Chiari malformation	1
Multiple sclerosis	1
Subdural abscess	1
Uraemia	1

ITEMS OF INTEREST

In the Fall of 1947, Dr. Penfield gave the Lane Lectures at Leland Stanford University. It is interesting that Sir William McEwen, who along with Horsley, we consider the Fathers of British Neurosurgery, gave these lectures years ago. Dr. Penfield's contribution is to be published in monograph form.

At the time of the Annual Meeting, Dr. Arthur Elvidge was serving on the Unitarian Medical Mission to Greece and Italy as the neurosurgical representative in a group of outstanding American physicians.

In February of 1948, the E.E.G. Department was again host to the Eastern Association of Electroencephalographers. The scientific program was combined with a ski weekend in the mountains, where scientific discussions were continued in an invigorating and informal atmosphere.

It is with great pleasure that we record the appointment to our Staff of Drs. Claude Bertrand and Harold Elliott as Assistant Adjunct Neurosurgeons, and Dr. Miller Fisher as Clinical Assistant in Neurology.

Dr. Theodore Rasmussen married one of our most efficient and charming secretaries, Miss Catherine Archibald, last December, and is now Professor of Neurosurgery at the University of Chicago.

Dr. Allan Bailey departed from Montreal last Fall to join the staff of the Mayo Clinic.

Dr. Ronald Stephens has become Chief Anaesthetist at the Children's Memorial Hospital.

Dr. David Daly left us in the Fall to finish his residency in neurology and to become Physician-in-Charge of Electroencephalography in the University of Minnesota Hospital in Minneapolis.

Dr. Walter Bremner is now attached to Ste. Anne's Veterans' Hospital in the Department of Psychiatry.

During the summer, Dr. Herbert Jasper attended the First International E.E.G. Congress in London as Canadian representative and President of the American E.E.G. Society. An International Journal was started, to be called, "Electroencephalography and Clinical Neurophysiology". Dr. Jasper was elected Editor-in-Chief.

Dr. Jasper is pleased to announce the birth of three monkeys in the Neurophysiology Laboratory during the past year — the first in the history of the Institute.

In May, 1947, a new organization was formed — the "Fellows' Society Auxiliary" — composed of the wives of the Fellows and others interested in taking on the responsibilities of a women's group in the life of the Institute. It is expected to fulfil many useful functions and we will watch its development with interest.

We are pleased to report the marriage of Dr. Donald Tower and Miss Arlene Croft. Also, more recently, of our Resident, Dr. Keasley Welch, and Miss Elizabeth McRae who has been in charge of the Operating Room.

The annual dinner of the Montreal Neurological Society took place on the night of the Hughlings Jackson Lecture. Dr. Arne Tolkildsen and Dr. Joseph Evans were present and were most welcome. Dr. Torkildsen has been visiting the Institute for a few weeks.

Dr. Lyle Gage paid a most welcome visit to the Institute early in June.