1950-51

To

DR. F. CYRIL JAMES,

PRINCIPAL AND VICE-CHANCELLOR,

MCGILL UNIVERSITY,

MONTREAL

Dear Mr. Principal:

On behalf of the Director and Staff, I have the honour to submit the sixteenth Annual Report of the Montreal Neurological Institute and the Report of the Department of Neurology and Neurosurgery, McGill University, Faculty of Medicine.

This report includes a summary of the clinical work for the calendar year of 1950, together with the scientific and research record for the academic year of 1950-51, and the list of professional staff at the close of the academic year.

Respectfully submitted,

J. PRESTON ROBB, *M.D.*,

Secretary-Registrar.

CONTENTS

REPORT OF THE DIRECTOR*

WILDER PENFIELD

In this Annual Meeting we make our report as usual to the University through Principal James. But more and more each year we also render account to a widening circle of friends, and to the City of Montreal, to the Province of Quebec, and to the Nation.

In the Director's report there appeared last year a note of joy, something quite alien to most Annual Reports! I shall quote from it: "A wonderful thing has happened. Support has come which makes possible the clinical reorganization so desperately needed . . . The Montreal Neurological Institute may now fulfill its destiny as a provincial and a national institute and its doors will never be closed."

I. FINANCIAL SUPPORT

That was a year ago. Our rejoicing was due to, first, the fact that Mr. Duplessis, speaking as Premier of the Province, had been able to promise substantial annual support for hospitalization deficits. I am glad to welcome as his representative this morning Mr. Onesime Gagnon, Treasurer of the Province of Quebec. The City had also made a single increased grant and we were hoping to learn that it would arrange for an annual grant proportional to that of the Province. We are still waiting anxiously for word from Mr. Asselin as to the decision of the City Council

The second encouragement had come from the fact that friends of the Institute, led by our long-time friend and advisor, Mr. J. W. McConnell, had contributed enough to make it possible to tear down the temporary annex and, according to our estimates at that time, build a wing that would provide for reorganization and moderate enlargement.

Mr. Paul Martin, Federal Minister of Health and Welfare, took a personal interest in our undertaking and, speaking for the Federal Government, promised building aid amounting to $211,500. Dr. Albini Paquette promised an equal amount of aid on the part of the Provincial Department of Health. In all, $1,822,000 was collected, a sum which seemed adequate to the project.

During the past year, the architects have drawn plans all too slowly, as it seemed to us, while building costs rose all too rapidly, and the features, which would provide the efficiency and economy the staff desired, were found to occupy greater space than had been suspected.

When the tentative estimates of cost seemed to pass the amount collected, the members of our small clinical staff contributed $18,145, an effort in which they may take pride whatever the outcome. The Nursing Staff has also voted to make a unanimous contribution. Now we await the results of contractors' bids with foreboding, and the future seems less certain.

*Report read at the Sixteenth Annual Meeting, May 16th, 1951, Principal James in the Chair.

The second objective of our Reorganization Campaign of last year was the establishment of an adequate permanent scientific endowment. The work of our laboratories is now supported roughly as follows: One third from the original Rockefeller Foundation endowment, one third from an annual grant from the Federal Government, one third from miscellaneous grants-in-aid of specific projects.

Further permanent endowment has not yet been achieved, but temporary assistance is at hand. I am most happy to be able to announce that the Bronfman family, citizens of Montreal who are well known for their generosity, have promised $20,000 a year for five years to be used for laboratory research, and this replaces previous five year grants in that amount which lapse next month.

II. THE CANADIAN SCENE

The Montreal Neurological Institute occupies a unique position in the Canadian scene; first because of the nature of its scientific work in that field of medicine which is least understood.

Secondly, the position of the Neurological Institute is unique in the field of clinical practice. During the first ten years of its existence here in Montreal, it enlarged the special field of Neurology by addition to it of a new specialty, Neurosurgery, and both were made strong by new scientific methods.

Once the new field of treatment was opened, some of the larger general hospitals that were not situated as close to the Institute as the Royal Victoria, began to consider the need of having their own neurosurgeons.

The University of Montreal and Laval University enlarged their academic departments correspondingly and appointed distinguished French-speaking neurologists and neurosurgeons to new posts.

This is excellent. I think it is not vainglory for us to say that the Montreal Neurological Institute has opened up a new field of medical practice here in the Province of Quebec, and, to a certain extent in other parts of the world.

But there is further work for this hospital to do, teaching, coordination research, consultation. There are many new fields of treatment to be opened up. The clinical staff in neurology and neurosurgery of most of the hospitals of Montreal are also members of our staff, or are working with us. Conferences back and forth on clinical problems are frequent and stimulating.

Thus, the Institute is a meeting ground for the specialists in this area. This has been of great benefit to all of us. And now I am glad to be able to announce that this clinical alliance will unite Quebec City with Montreal in this field.

III. APPOINTMENTS

It gives me great pleasure to be able to announce that Dr. Sylvio Caron, Professeur de Neurologie à l'Université de Laval et Surintendant à la Clinique Roy Rousseau, also neurologist to the Hotel Dieu, has accepted appointment as Consulting Neurologist at the Montreal Neurological Institute. This adds another

distinguished French-speaking neurologist to a post similar to that held from the foundation of this Institute by Professor Jean Saucier and Dr. Roma Amyot, and formerly held by the late Professors Antonio Barbeau and Emile Legrand.

It gives me pleasure to announce also that Dr. Jean Sirois, a member of Professor Caron's academic department and chief of the clinic in neurosurgery in l'Enfant Jesus Hospital in Quebec, has accepted the post of adjunct neurosurgeon, joining in this post Dr. Claude Bertrand and Dr. Harold Elliott.

Ces nominations ne font que rendre officielles les relations amicales que nous avons entretenues avec la Neurologie de Québec pendant de nombreuses années, et, plus récemment, avec sa Neuro-chirurgie. Elles constituent un hommage à l'excellence du travail accompli par nos confrères dans la capitale de cette Province.

There are two departments of our university with which we in this Institute have enjoyed the closest cooperation: Pathology and Bacteriology; two departments that are housed in the Pathological Institute next door to us.

It will bring great pleasure to our staff to know that Dr. G. Lyman Duff, Strathcona Professor of Pathology, has accepted appointment as Consulting Pathologist to the Montreal Neurological Institute, and that Dr. E. G. D. Murray, Professor of Bacteriology and Immunology, has accepted the post of Consulting Bacteriologist. They are old friends, close friends, and distinguished scientists. These appointments are long overdue and their acceptance brings us much honour.

IV. DEPARTMENTAL NOTES

Professional work within the Institute, as distinguished from administration, is carried out in sub-departments as shown in the following table. But time allows only the most incomplete reference to the professional work.

PROFESSIONAL SUB-DEPARTMENTS —TABLE A

Clinical Services	Clinical Laboratories	Research Laboratories
Neurology	Neuropathology	Neurophysiology
Neurosurgery	Neurochemistry	Neuroanatomy
Anaesthesia	Radiology	Experimental Neuro-chemistry
Nursing Service	Electroencephalography	
Social Service	Neurophotography	Multiple Sclerosis

In the department of Neurology, Dr. McEachern has made the exciting discovery that there is a group of elderly patients who can be relieved of muscle weakness and sudden falling by certain forms of replacement therapy. This seems to be a newly recognized disease entity produced by deficient glandular activity and susceptible of specific treatment.

Dr. Cone, seconded by Dr. Elvidge, continues to break new ground in neurosurgery with new conceptions and newly devised apparatus.

Dr. André Pasquet, now in his fourth year in charge of anaesthesia, has added to his staff, as Associate Anaesthetist, Dr. R. G. B. Gilbert, a talented teacher and an anaesthetist of considerable war time experience, serving with the British Army from Burma and India to the continent of Europe. They cooperate

actively with Professor Griffith in the teaching of anaesthesia and are in the process of developing a pain treatment clinic.

It is a tribute to this newly formed department that Dr. E. A. Pask, of Newcastle, distinguished Professor of Anaesthesia in the University of Durham, spent six months during the past year in our Department of Anaesthesia because of the research possibilities here. Among other things he developed a new system of electrographic recording for the operating room. Such vital functions as respiration, heart beat, blood pressure, skin temperature, and gastric motility can now be registered electrically while the patient is being operated upon. This has both practical and research importance.

The report of the Department of Electroencephalography illustrates the close inter-relationship of the Montreal Neurological Institute with other hospitals. Dr. Jasper finds that this laboratory carried out 2,048 E.E.G. examinations during the year — 40% from the wards of the M.N.I., 24% from wards and O.P.D. of the Royal Victoria, and 35% from other hospitals and private offices.

In 72 operations during the year, electrocorticograms were carried out during operation, the brain waves being recorded by electrodes placed directly upon the exposed brain of conscious patients. This technique is proving ever more valuable as a guide to the neurosurgeon in the surgical treatment of epilepsy. Indeed the E.E.G. outside of, and inside, the operating room, as used by Dr. Jasper, has greatly extended the field of surgical treatment of focal epilepsy, and especially what may be called temporal lobe epilepsy.

I dare say that there are thousands, yes hundreds of thousands of sufferers from epilepsy waiting for surgical treatment (although fortunately they don't know it). This field will open only when, in the future, neurological, surgical and E.E.G. teams are trained throughout the world to carry out these complicated procedures.

A Department of Experimental Neurochemistry is being established on a separate scientific budget under Dr. K. A. C. Elliott who has been raised in rank to Associate Professor both in the Department of Biochemistry and in our Department. Dr. Donald Tower has been awarded a 5 year Markel Foundation Fellowship to continue his researches in brain chemistry with Professor Elliott.

Dr. Roy Swank has prosecuted the investigation of multiple sclerosis with great vigor, using space which Dr. Cone has characteristically made available to him in his crowded laboratory of neuropathology. The work is being supported by an anonymous donor, by the Multiple Sclerosis Society of Canada, and by a Dominion-Provincial Public Health Research Grant.

Dr. Swank has just completed an analysis of the remarkable variations of incidence of this disease in different areas of Norway and has been instrumental in having an analysis made of the average diet in the corresponding areas of that country.

V. CAMPAIGNS AND COMMUNISM

In these days of breathless peace, while Korean guns echo their warning round the world, why should one hospital after another distract the public with

new campaigns for funds? Some Canadians who are concerned with the need of adjusting rising incomes to rising costs have questioned the wisdom of millions for building when they see no answer to the problem of balancing the budgets of the hospitals and the universities.

It is not my place here and now to make answer for the Royal Victoria Hospital, Notre Dame, the Montreal General, and the others, nor to discuss the crying financial need of the universities. But I shall take this opportunity to restate the case of the Montreal Neurological Institute.

We drew up our building plans only in order to make possible essential reorganization. That is — more efficient and more economical handling of the patients who now demand admission, many of whom could not be cured elsewhere. This reorganization will give us a greater proportional income from patients who can pay. This is the most effective step that we can take toward balancing the hospital budget. It will provide facilities for better business administration and will house the scientific personnel now bursting out of the doors of our laboratories.

Canada and the other free countries face a double problem, the problem of building up our defences in case of war and the simultaneous problem of building a structure of social justice and social security at home. In the long run it is the nature of our social structure which may win or lose the issue of our struggle with the communist countries. In the last analysis, it is the comparison of social structures (communist and democratic) which should decide who deserves to be the victor in this global competition.

What better entitlement can we find for survival than the support we give to the great altruistic projects of our campaigns, and what a contrast all this provides to life in Soviet Russia!

Here — the great charities, social welfare projects, the free pursuit of the Truth in lecture room and laboratory. All these things are maintained by the willing labor, or the generous gifts of our finest citizens, working hand in hand with our government. Over there — the paralyzing fear of the police, the smothering of free enterprise. There, the public has no voluntary welfare projects to support The expression of political thought and of scientific rationalization alike are stifled in a rigid censorship of the mind.

I learned to know, and to like, the Russian doctors during the second World War, and the German doctors just before the war. I saw, at first hand, the working of the institutions in both countries. I felt the all pervading fear that they felt; sensed the frustration of thoughtful minds.

In both countries, Nazi Germany and Soviet Russia, alike, campaigns for human betterment and expressions of generous impulse (except toward government), were forbidden. Spontaneous scientific research, which is the only type of research that bears good fruit, was paralyzed. Instead of those spiritual elements that we call virtues — one common reaction — fear, fear and suspicion.

In both countries, men were being forced into a new religion. It was not so much a sweeping away of the old beliefs of the old, as it was a teaching of new beliefs to the young; raising new idols for them to worship, synthetic, atheistic idols.

Nazi Germany is gone. We helped to overthrow it only to be confronted by a new power and a more menacing philosophy. We who are blessed with freedom and who worship the God of Abraham after the manner of Catholic, Protestant, Jew or Muslim, together with those who serve him in less orthodox fashion, must now justify our way of life.

At this time the hospitals, the charities and the educational institutions should (within reason) expand, rather than contract their efforts, so that we may be able to do more to alleviate suffering, not less; be able to discover the true principles that govern mind and matter, and thus justify our religion, our system of morals and the conservative socialization of our democracy.

Well, what about the Montreal Neurological Institute? Is it a challenge to Communism? Yes. Its organization on a permanent basis would be just that. Leadership in biological science is a hopeful Soviet boast for one thing.

In time of war these laboratories and this team of scientists, clinicians, nurses, technicians would add great strength to the common defence. Through years of peace it may well contribute an important chapter in the understanding that is prerequisite to Wisdom.

The nervous system is unbelievably intricate. It constitutes the greatest unexplored territory in medicine. In it are hidden secrets of mind, body and behaviour. It was reasonable that the Rockefeller Foundation should have asked one university on this continent to house its department of neurology and neurosurgery in an institute for the purposes of leadership.

But Canadians must now put the work on a permanent footing. To be effective this work must be carried on generation after generation until the day dawns when knowledge of himself may make man free.

WILDER PENFIELD.

STAFF OF THE MONTREAL NEUROLOGICAL INSTITUTE

OFFICERS

Director ..... WILDER PENFIELD
Assistant Director ..... FRANCIS MCNAUGHTON
Secretary-Registrar ..... PRESTON ROBB
Executive Assistant—Hospitalization ..... JOHN KERSHMAN
Building Administration ..... MISS EILEEN FLANAGAN
Executive Secretary ..... MISS ANNE DAWSON

CHIEFS OF SUB-DEPARTMENTS

A. *Hospital*

Neurologist ..... DONALD MCEACHERN
Neurosurgeon ..... WILLIAM CONE
Roentgenologist ..... DONALD MCRAE
Electroencephalographer ..... HERBERT JASPER
Anaesthetist ..... ANDRÉ PASQUET

B. *Laboratory*

Neuroanatomist ..... FRANCIS MCNAUGHTON
Neurochemist ..... DONALD MCEACHERN
Neuropathologist ..... WILLIAM CONE
Neurophotography ..... JOHN KERSHMAN
Neurophysiology ..... HERBERT JASPER

Top Row: L. Roberts, R. Hain, K. Earle, H. McLennan, I. Klatzo, P. Westhaysen, S. Markowicz, R. Harcus.
Fifth Row: E. Brodkin, J. Van Buren, R. Druckman, T. Speakman, G. Austin, C. Li, G. Shy, A. Lundervold, J. Stoll, W. Gerber, A. Barnum, D. Lloyd-Smith.
Fourth Row: R. Lewis, M. Baldwin, C. Marsan, J. Olszewski, R. Aquilina, W. Calvo, A. Dekaban, M. Gibson, H. Piraux, K. Tukel, A. Matheson, W. Feindel.
Third Row: R. Gilbert, D. McRae, A. Young, R. Swank, R. Rabinovitch, F. McNaughton, K. A. C. Elliott, J. Kershman, J. Sirois, A. Pasquet, A. Elvidge, P. Robb.
Second Row: W. Cone, J. D. Johnson, E. Flanagan, J. Saucier, D. McEachern, Onesime Gagnon, C. James, J. Collip, W. Penfield, J. Chaisson, S. Caron, C. Russel.
First Row: W. Wilkey, M. Robb, F. Haddad, J. Hanbery, G. Dugger, E. Peterson, H. Rosen, R. Sears, J. Bates, L. Walkchaf, J. Stratford, J. Hunter.

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

Clinical Assistants in Neurology

MILLER FISHER, B.A., M.D., F.R.C.P. (C)
DONALD LLOYD-SMITH, B.Sc., M.D., C.M., F.R.C.P. (C)
ROY SWANK, B.S., Ph.D., M.D.

Neurosurgeon

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

Associate Neurosurgeon

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

Clinical Assistants in Neurosurgery

MAITLAND BALDWIN, B.S., M.D., C.M.
REVIS LEWIS, M.Sc., M.D., C.M.
FRANCIS O'BRIEN, A.B., M.D.

Roentgenologist

DONALD MCRAE, M.D.

Electroencephalographer

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

Anaesthetist

ANDRÉ PASQUET, M.D., C.M.

Associate Anaesthetist

R. G. B. GILBERT, M.B., B.S. (London), M.R.C.S., L.R.C.P., D.A.

Associate Neuroanatomist

JERZY OLSZEWSKI,* Ph.D., M.D.

Associate Neurochemist

K. A. C. ELLIOTT, M.Sc., Ph.D., D.Sc.

Associate Neuropathologist

ROY SWANK, B.S., Ph.D., M.D.

*Lady Davis Fellow

CONSULTING AND ADJUNCT CLINICAL STAFF

Consulting Neurologists	ROMA AMYOT, B.A., M.D., (Montreal and Paris)
	SYLVIO CARON, M.D., F.R.C.P. (C)
	JEAN SAUCIER, B.A., M.D. (Paris and Montreal)
	NORMAN VINER, B.A., M.D., C.M.
Adjunct Neurosurgeons	CLAUDE BERTRAND, B.A., M.D.
	HAROLD ELLIOTT, B.Sc., M.D., C.M.
	JEAN SIROIS, B.A., M.D.
Consulting Anaesthetist	F. A. H. WILKINSON, M.D., C.M., F.A.C.A., F.I.C.A.
Consulting Bacteriologist	E. G. D. MURRAY, O.B.E., M.A. (Cantab.), L.M.S.S.A. (Lond.), F.R.S.C.
Consulting Pathologist	LYMAN DUFF, B.Sc., M.A., M.D., Ph.D. (Tor.), F.R.S.C.
Consulting Roentgenologist	CARLETON PIERCE, A.B., M.Sc., M.D., F.A.C.P.

TEACHING STAFF

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

Professor of Neurology and Neurosurgery, Chairman of Department	WILDER PENFIELD
Professor of Neurosurgery	WILLIAM CONE
Professor of Experimental Neurology	HERBERT JASPER
Associate Professors of Neurology	DONALD MCEACHERN
	FRANCIS MCNAUGHTON
Associate Professor of Experimental Neurology	K. A. C. ELLIOTT
Assistant Professors of Neurology	JOHN KERSHMAN
	ROY SWANK
	ARTHUR YOUNG
Assistant Professor of Neurosurgery	ARTHUR ELVIDGE
Assistant Professor of Neurological Radiology	DONALD MCRAE
Assistant Professor of Neuroanatomy	JERZY OLSZEWSKI
Lecturers in Neurology	PRESTON ROBB
	DONALD LLOYD-SMITH
Lecturers in Neurosurgery	HAROLD ELLIOTT
Demonstrators in Neurology	G. M. SHY, B.A., M.D., M.R.C.P.
Demonstrators in Neurosurgery	MAITLAND BALDWIN
	JOHN HANBERY, A.B., M.D.
	REVIS LEWIS
	ERIC PETERSON
Demonstrator in Neuropathology	IGOR KLATZO
Demonstrator in Electroencephalography	LEWIS HENDERSON

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

Professors	WILLIAM CONE
(Chairman)	HERBERT JASPER WILDER PENFIELD
Associate Professors	DONALD MCEACHERN FRANCIS MCNAUGHTON K. A. C. ELLIOTT
Assistant Professors	ARTHUR ELVIDGE JOHN KERSHMAN JERZY OLSZEWSKI ROY SWANK

RESIDENT STAFF — July 1950 - July 1951

Senior Residents	JOHN HANBERY** ERIC PETERSON**
1. *Neurological Service* *Neurological Resident*	JOHN HUNTER**, JOHN HANBERY**, FUAD HADDAD, MARY ROBB**, CHARLES MACLEAN*, ALAN RAMSAY*, SHELTON DUGGER**, WILLIAM WILKEY*
2. *First Neurosurgical Service* *Neurosurgical Resident*	THOMAS SPEAKMAN**, HAROLD ROSEN**,
Assistant Residents	WILLIAM FEINDEL**, ERIC PETERSON**, JOHN BATES**, JOHN HUNTER**
3. *Second Neurosurgical Service* *Senior Assistant Resident*	ROBERT SEARS**, CHOH-LUH LI**,
Assistant Residents	ALEC BARNUM**, ROBERT SEARS**, WILLIAM FEINDEL**, JOSEPH STRATFORD**

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

***Six months on this service*

FELLOWS OF THE MONTREAL NEUROLOGICAL INSTITUTE

1950 - 1951

Neuropathological Fellow ..... JOHN VAN BUREN, A.B., M.D. (Columbia)

Neuroanatomical Fellows ..... KENNETH EARLE*, B.A., M.D. (Texas)
ROBERT AQUILINA*, M.D. (Paris)

Electroencephalographic Fellows ..... DONALD LLOYD-SMITH*, B.Sc., M.D., C.M. (McGill)
CHOH-LUH LI*, B.A., M.D. (Shanghai)

COSIMO AJEMONE-MARSAN**, M.D. (Turin)
ROBERT AQUILINA, M.D. (Paris)
GEORGE AUSTIN††, A.B., M.Sc., M.D. (Pennsylvania)
MAITLAND BALDWIN, M.D., C.M. (Queen's)
ALEC BARNUM, A.B., M.D. (Yale)
JOHN BATES, M.Sc., M.D., C.M. (McGill)
WENCESLAS CALVO**, B.A., B.Sc., M.D. (Valencia)
ANATOLE DEKABAN, M.D. (Warsaw)
RALPH DRUCKMAN, B.Sc., M.D. (McGill)
SHELTON DUGGER, A.B., M.D. (North Carolina)
KENNETH EARLE, B.A., M.Sc., M.D. (Texas)
WILLIAM FEINDEL, B.A., M.Sc., Ph.D., M.D., C.M. (McGill)
WILLIAM GERBER, A.B., M.D. (Arkansas)
MYLES GIBSON, M.B., Ch.B. (Glasgow)
FUAD HADDAD, B.Sc., B.A., M.D. (Beirut)
RAYMOND HAIN, B.Sc., M.D. (Philadelphia)
JOHN HANBERY, A.B., M.D. (Stanford)
JOHN HUNTER, M.B., B.S., M.Sc. (Sydney)
IGOR KLATZO, M.D. (Freiburg)
REVIS LEWIS, M.Sc., M.D., C.M. (McGill)
CHOH-LUH LI, M.Sc., B.A., M.D. (Shanghai)
DONALD LLOYD-SMITH†††, B.Sc., M.D., C.M. (McGill)
SIMON MARKOWICH, M.D. (Chile)
JERZY OLSZEWSKI†, Ph.D., M.D. (Freiburg)
ERIC PETERSON, B.Sc., M.D., C.M. (McGill)
ANDRÉ PIRAUX, M.D. (Brussels)
LAMAR ROBERTS, A.B., M.D. (Duke)
HAROLD ROSEN, B.S., M.Sc., M.D., C.M. (McGill)
ROBERT SEARS, A.B., M.D. (Harvard)
MILTON SHY, B.S., M.D. (Oregon)
THOMAS SPEAKMAN, M.Sc., M.D. (Manitoba)
JULIUS STOLL***, B.A., M.D. (Syracuse)
JOSEPH STRATFORD, B.Sc., M.Sc., M.D., C.M. (McGill)
KENAN TUKEL, M.D. (Istanbul)
JOHN VAN BUREN, A.B., M.Sc., M.D. (Columbia)
PETER WESTHAYSEN, B.Sc., M.Sc., M.D. (Harvard)

**Six months in this position*

***Rockefeller Foundation Fellowship*

****National Foundation for Infantile Paralysis Fellowship*

†Lady Davis Fellowship

††National Institute of Mental Health Fellowship

†††Borden Neurological Fellowship

NURSING STAFF

Director of Nursing ..... Miss Eileen C. Flanagan, B.A., R.N
Assistant Director of Nursing ..... Miss Bertha Cameron, R.N.
Instructor ..... Miss Alice Major, B.N., M.A., R.N.
Night Supervisor ..... Miss Elizabeth Barrowman, R.N.
Assistant Night Supervisor ..... Miss Lillian McAuley, R.N.
Assistant Night Supervisor ..... Miss Jean MacMillan, R.N.
Operating Room Supervisor ..... Miss Margaret Haggart, R.N.
Assistant Operating Room Supervisor ..... Miss Phoebe Stanley, R.N.
Supervisor, Dressing Rooms ..... Miss Marie Comeau, R.N.

HEAD NURSES

Miss M. MacKenzie, R.N
Miss M. Cavanagh, R.N.
Miss P. Murray, R.N.
Miss A. Johnson, R.N.

ASSISTANT HEAD NURSES

Mrs. N. Shiells, R.N.
Miss C. Lawrence, R.N.
Miss M. McAfee, R.N.
Miss G. Trafford, R.N.

OPERATING ROOM STAFF

Miss L. Last, R.N.
Miss S. Langevin, R.N.
Miss H. Callender, R.N.
Miss M. Malcolm, R.N.
Miss J. Barnett, R.N.
Miss S. Lewis, R.N.
Miss R. Muirhead, R.N.
Miss S. Costigan, R.N.
Miss A. DesRoches, R.N.

DRESSING ROOM STAFF

Mrs. M. Corrigan, R.N.
Miss D. McDonald, R.N.
Miss A. Cameron, R.N.
Miss R. Dickson, R.N.

GENERAL STAFF

Miss B. Callaghan, R.N.
Miss A. McCombe, R.N.
Miss G. Murray, R.N.
Miss O. Lawton, R.N.
Miss J. Egerton, R.N.
Miss M. Angus, R.N.
Miss A. Milo, R.N.
Miss C. Robertson, R.N.
Miss D. Kaulbach, R.N.
Miss A. Grbac, R.N.
Miss L. Logan, R.N.
Miss D. MacQuarrie, R.N.
Mrs. V. Mosher, R.N.
Miss D. McTavish, R.N.
Miss S. Giroux, R.N.
Miss J. Stanley, R.N.
Mrs. V. Swaney, R.N.
Miss L. Seifert, R.N.
Miss M. Pond, R.N.
Mrs. B. Klatzo, R.N.
Miss L. Cox, R.N.
Miss J. McGregor, R.N.
Miss H. Torrance, R.N.
Miss N. Cornwall, R.N.
Miss I. Lindsay, R.N.
Miss P. Rattray, R.N.
Miss H. Arsenault, R.N.
Miss J. Fraser, R.N.
Miss G. Cooper, R.N.
Miss J. Percival, R.N.
Miss M. Hurley, R.N.
Miss R. Drury, R.N.
Miss G. Barker, R.N.
Miss L. Reyjal, R.N.
Miss N. Siddons-Grey, R.N.
Miss I. Truman, R.N.
Mrs. K. Grier, R.N.
Miss G. Murray, R.N.
Miss J. Hallett, R.N.
Miss S. Boivin, R.N.

SOCIAL SERVICE STAFF

Director ..... Mrs. Josephine Chaisson
Social Worker ..... Miss Anna Faust
Social Worker ..... Miss Teruko Hidaka

Left to right:

Top Row: J. Hallett, H. Arsenault, F. Graham, I. Gotterod, A. Palevicus.

Fifth Row: A. Cameron, B. Callaghan, R. Drury, D. McDonald, R. Muirhead, J. Barnett, L. Cox, J. Fraser.

Fourth Row: N. McAfee, N. Siddons-Grey, D. Kaulbach, A. Milo, C. Robertson, S. Costigan, V. Merritt.

Third Row: A. Grbac, I. Lindsay, J. Percival, A. Gerrish, M. Corrigan, L. Siefert, G. Cooper, G. Murray, L. Last.

Second Row: N. Shiells, C. Lawrence, G. Trafford, M. Cavanaugh, B. Cameron, E. Flanagan, M. Comeau, M. Mackenzie, A. Johnson, A. Major.

First Row: S. Boivin, A. McCombe, M. Pond, J. Stanley, M. Hurley, L. Logan, P. Murray.

Social Worker on Research Project ..... Miss Daphne Cahill*
Social Worker on Research Project ..... Miss Mariette Gosselin**

**Supported by the Multiple Sclerosis Society of Canada to study the social aspects of multiple sclerosis.*

***Supported by Federal Provincial Grant to study the social aspects of epilepsy*

TECHNICAL AND SECRETARIAL STAFF

TECHNICIANS

Mrs. Eva Baker, B.Sc., Neurochemistry
Miss Doris Brophy, B.A., Lic. ès Sci., Neurochemistry
Miss Caroline Chiasson, R.T., X-ray
Mrs. Jean Fairlie, Neuropathology
Leslie Geddes, B.Eng., Electroencephalography
John Gilbert, Neuropathology
Miss Aagot Grimsgaard, Neuropathology
Ronald Haram, Assistant Photographer
Miss Jean Harris, R.T., X-ray
Lewis Henderson, Electroencephalography
Charles Hodge, Photographer
Miss Darcy Hubbell, X-ray
Miss Mabel MacCallum, R.T., X-ray
Miss Lili Prisko, Electroencephalography
Miss Kathleen Ramsay, Neurochemistry
Miss Mary Roach, R.N., Neurophysiology
Mrs. Hazel Robinson, Neurochemistry
Charles Stevens, Neurophysiology
Mrs. Alice Szczeniowska, Neuroanatomy
Miss Valerie Wilmot, B.A., M.Sc., Neuropathology

SECRETARIES

Miss Elsie Allder, R.N., Secretary to Registrar
Miss Mabel Beighton, X-ray
Mrs. Elinor Christie, Manuscripts
Mrs. Catherine Davidson, Electroencephalography
Mrs. Corinne Deguise, Office
Mrs. Iona Dolphin, Social Service
Miss Ann Gibson, B.Sc., Neuropathology
Mrs. Eileen Hodge, Office
Mrs. Isabel Knott, B.A., S.B., Operation Reports
Miss Lois MacDonald, Discharge Summaries
Mrs. Tatiana MacLean, B.A., Follow-up Secretary
Mrs. Kate Maguire, X-ray
Miss Diana Meakins, Office Clerk, Social Service
Miss Hilda Moacdie, Clinic Secretary
Miss Ina Pearen, Neurophysiology
Miss Dulcie Robinson, Office
Miss Elizabeth Ross, Case Histories

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 Outdoor Clinics ..... Donald Lloyd-Smith
Roy Swank

MONTREAL GENERAL HOSPITAL

Neurologist ..... Francis McNaughton
Associate Neurologists ..... Preston Robb
Norman Viner
Neurosurgeon ..... Harold Elliott
Consulting Neurosurgeons ..... William Cone
Arthur Elvidge
Wilder Penfield
Clinical Assistant ..... Miller Fisher

CHILDREN'S MEMORIAL HOSPITAL

Honorary Consultant	COLIN RUSSEL
Consultant	WILDER PENFIELD
Director of the Department of Neurology	ARTHUR YOUNG
Neurologist	FRANCIS MCNAUGHTON
Associate Neurologist	PRESTON ROBB
Director of the Department of Neurosurgery	WILLIAM CONE
Associate Neurosurgeon	ARTHUR ELVIDGE
Consultant	DONALD MCRAE

HOMEOPATHIC HOSPITAL

Consultant in Neurosurgery	WILLIAM CONE

HOTEL DIEU

Chief of Neurological Service	JEAN SAUCIER

HOPITAL NOTRE DAME

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

HERBERT REDDY MEMORIAL HOSPITAL

Consulting Neurosurgeon	ARTHUR ELVIDGE
Assistant Neurologist	PRESTON ROBB
Assistant Neuropsychiatrist	JOHN KERSHMAN

JEWISH GENERAL HOSPITAL

Chief of Department of Neurology and Psychiatry	JOHN KERSHMAN
Consultants	WILDER PENFIELD
	NORMAN VINER

QUEEN MARY VETERANS' HOSPITAL

Chief Consultant in Neurosurgery	WILDER PENFIELD
Consultants in Neurosurgery	WILLIAM CONE
	ARTHUR ELVIDGE
Head of Neurosurgical Division	HAROLD ELLIOTT
Assistant in Neurosurgery	THOMAS SPEAKMAN
Chief Consultant in Neurology	DONALD MCEACHERN
Head of Neurology Division	PRESTON ROBB
Consultant in Neurology	MILLER FISHER
Assistant in Neurology	ANATOLE DEKABAN
Consultant in Neuroradiology	DONALD MCRAE
Head of Electroencephalography Division	JOHN KERSHMAN

ST. MARY'S HOSPITAL

Physician (Neurology)	ARTHUR YOUNG
Consultant in Neurosurgery	ARTHUR ELVIDGE

VERDUN PROTESTANT HOSPITAL

Neurosurgery Consultant	WILDER PENFIELD
Neurosurgery Associate	ARTHUR ELVIDGE
Consulting Neurologists	PRESTON ROBB
	NORMAN VINER

ALEXANDRA HOSPITAL

Consultant in Neurology	DR. COLIN RUSSEL
Consultant in Neurosurgery	DR. WILLIAM CONE

REPORT OF THE NEUROLOGIST

DR. DONALD MCEACHERN

The Neurological service has been humming this year and it is a pleasure to see the awakening interest in this field. Well trained neurologists are now at a premium throughout the country. Our residents, Dr. Hunter and Dr. Hanbery, have done wonderful work, and the assistant residents have been of unusually high resource and performance. We are particularly happy with the arrangement whereby well trained assistant residents in internal medicine from the Royal Victoria Hospital spend four months of rotation with us.

To my colleagues, Dr. McNaughton, Dr. Young, Dr. Kershman, Dr. Swank and Dr. Rabinovitch, I offer sincere thanks for their fine work on the wards and in the Outpatient Department and for their stimulus in teaching. All of these men occupy other positions of responsibility, but give unstintedly of their time for these tasks.

Teaching at the post-graduate level has been greatly fostered by a series of 18 neurological seminars conducted by Dr. Shy with the assistance of fellowship men. To all of these we are most grateful. Dr. Shy has also carried out important clinical research in a most able way.

A physiotherapy clinic for the treatment of patients with multiple sclerosis was opened during the year. It has been a useful start towards a broader plan for the rehabilitation of people crippled from different causes. The clinic was furnished and was set in being through the efforts of the Colin K. Russel (Montreal) Chapter of the Multiple Sclerosis Society of Canada. Dr. Young and Dr. Rabinovitch supervise this clinic.

Finally, I should like to pay tribute to our associates, of many different fields, in the Royal Victoria Hospital. They have helped us in innumerable ways and have come to our aid on many occasions — to our own benefit and for the welfare of our patients.

REPORT OF THE NEUROSURGEON

DR. WILLIAM CONE

For some years now it has been considered that the neurosurgical service has worked at full capacity. Use of the building and equipment has been at a maximum, and no significant increase of the clinical work is possible until facilities are enlarged. It is true that while in 1949 there were 1,088 admissions in Neurosurgery and 823 operations, in 1950 there were 1,156 admissions and 926 operations. This slight increase was possible only because in X-ray, Anaesthesia, Electroencephalography and Neurochemistry, gears were shifted to higher, but still safe speeds, because the nursing staff in the operating room and in the wards have worked so willingly, because Miss Flanagan has lost none of her agility in shuffling beds to make room for patients, and finally because of the splendid work of the resident staff. And Neurology too has shifted to higher gears and helped greatly.

A review of the classification of operations and the classification of diseases for the year shows great diversity. Two hundred and twelve (212) patients were

admitted as emergencies after injury to the brain, spinal cord or peripheral nerves. On the whole this group is a specially selected one. Many of the patients were transferred from other hospitals where it had been recognized that treatment in a special neurosurgical centre was required. As a result most of the unusual variants of trauma to the nervous system were encountered.

Dr. Penfield has carried out excision of the epileptogenic focus in 72 patients in the surgical treatment of epilepsy this year. Patients in whom the lesion has been found in the temporal lobe have constituted a particularly significant group from the clinical and neurophysiological standpoints, and in many instances from the neuropathological side as well. Bizarre pathological lesions have been revealed by microscopic study of the material removed.

Tumours of the central nervous system constitute numerically the greatest clinical load as the M.N.I. Tumour Registry's first annual report discloses. The actual neoplastic load for the year was 298 patients, and if patients classified as tumour suspects, sometimes requiring multiple admissions before neoplasm is disproven or verified, are included, the number is 425. Dr. Elvidge as Chairman of the M.N.I. Tumour Registry is to be congratulated on the work of the Registry, and Dr. Barnum and Miss Fyles commended on the excellence of the first annual report from the registry. Surely some added leads to aid in the treatment of tumours of the central nervous system will come eventually from such documentation and study.

The treatment of pain secondary to inter-vertebral disc protrusion and the coincident changes in the vertebra accounts for 177 operations. Dr. McRae's interest in the radiological aspects of disc degeneration and the work in the neuropathology laboratory have continued to be a guide to rational management of a complex problem.

Though trauma, epilepsy, tumours and protruded discs constituted most of the work on the service, other operations carried out during the year ran the entire gamut of neurosurgery and made the balance a broad one. If room could be found, no patient was turned away.

A Dominion-Provincial grant made the M.N.I. Tumour Registry possible. Other grants from this source have provided new neurosurgical cots which facilitate the treatment and management of children, new neurosurgical beds for adults, a new X-ray machine, new equipment for anaesthesia, and new operating room equipment, including both instruments and sterilizers. The new equipment has made it possible to work more safely and effectively.

The realization that the facilities of the Institute are to be increased brings with it a feeling of expectancy and relief. This is tempered only slightly by anxiety over the disruptions which are inevitable incidents to alterations and building. In the near future it will be possible to arrange the work of the neurosurgical service so that it can be carried out with much less strain and tension. With the increased number of beds, it is hoped the daily decision now necessary as to which patients on the waiting list are most urgent for admission will not have to be made and that patients can be admitted in order and before they become emergencies. It will be possible, I hope, to plan an orderly schedule of operations and reduce those done as emergencies to a minimum. The care of the patient will be improved not only because of the better facilities, but because we continue to care for the patient.

REPORT OF THE REGISTRAR

DR. PRESTON ROBB

The Registrar's Annual Report is always a statistical one, — a report in figures of the clinical work of the Institute. This work consists of the ward services, the daily outpatient clinics and consultations in the Royal Victoria Hospital.

During 1950, there were 1,685 admissions and 177 transfers from other services, making a total of 1,862, as compared with 1,831 in 1949. The death rate was 4.99% and the autopsy rate 87.96%. There were 926 operations performed. The average hospital stay was 19 days, and the total hospital days were 35,374.

The Outpatient Clinics represent a large and important part of the work of our department. There were 796 new patients referred for neurological and neurosurgical consultations. There were 4,125 revisits, making a total of 4,921.

As well as the regular neurological and neurosurgical clinics, special clinics for epilepsy, neuromuscular diseases and multiple sclerosis continue to operate. It is through these clinics that special medical and social research is being carried out in these diseases.

We are frequently asked "What is a Registrar?" In the Institute, it means many things, the chief one being "the person charged with keeping the records". We are proud of our records. In the early days, Dr. Petersen set a high standard. This, we endeavor to maintain.

The teaching programme of the Institute continues to be an active one. Undergraduate courses to medical students and nurses of the Royal Victoria Hospital were given; advanced courses were given in neurological nursing to graduate nurses, and post-graduate courses in all of the branches of neurology were given to the Fellows of the Institute.

Research workers, neurologists and neurosurgeons continue to come to the Institute from all parts of the world. In reviewing the Fellows, both past and present, it was worthy of note that there have been 219 from 28 different countries of the world.

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
1948	1773	33366	19.1	5.7%	94.4%	987
1949	1831	32255	17.6	4.2%	73.8%	823
1950	1862	35434	19.0	4.99%	87.96%	926

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

Monday	Neurology & Neuromuscular Diseases
Tuesday	Neurosurgery
Wednesday	Neurology (Epileptic)
Thursday	Neurology
Friday	Neurosurgery
Monday to Friday (daily)	Neurology Treatment Clinic

	Neurology	Neurosurgery	Totals
New cases	577	219	796
Revisits	3430	695	4125
	4007	914	4921

REPORT ON HOSPITALIZATION

DR. JOHN KERSHMAN,
Executive Assistant.

During 1950, the hospital continued to function at a great deal more than its optimal capacity. There was an average daily census of 97 patients, an increase of 9 patients per day over last year. Considering the already overcrowded conditions of which we have continually complained, this must be considered a miracle of management, the secret of which is known only to Miss Flanagan and Miss Cameron.

The expected stabilization of costs was realized this year. The daily cost per patient was $16.85 during 1950, an increase of only slightly more than 1% over 1949. However, it must be remembered that this level is more than twice the cost in 1944, only 6 years ago, and our satisfaction at this new level of stability is tempered by the realization that the present threat of war will again upset the current economic structure. The last few months have already shown a steady new rise in costs.

The Institute is still caring for a very high proportion of public patients. They account for over 63% or nearly two-thirds of the patients in hospital.

This has been a year of investigation and planning. Every conceivable aspect of the Hospital activity has been thoroughly scrutinized during the past twelve months and a careful analysis was made of each item of cost and income, and

of the organization of the hospital itself. The purpose of this was twofold: First, to survey the existing state of affairs to see what methods could be introduced to improve the financial structure, and secondly, to attempt to visualize what would be the effect of adding more beds to the present hospital.

Our own efforts in this regard were supplemented by a survey carried out by Drs. MacLean and Graham of the Strong Memorial Hospital, Rochester, New York, who submitted a comprehensive report to the Principal.

In general, the report of these consultants confirmed and reinforced many of our own ideas regarding the need for recasting some of our present methods of administration. The alterations will require a considerable amount of groundwork and patience. Above all, it will need the conscientious and generous cooperation of the staff of the Royal Victoria Hospital. Since we have always had this from the present administration of the Royal Victoria Hospital, we can look forward confidently to the future.

REPORT OF THE DIRECTOR OF NURSING

MISS EILEEN C. FLANAGAN

The past year has been a very satisfactory one for the Nursing Department. We have had a full staff of both Nurses and Nursing Aides, which ensured excellent nursing care for the patients.

Twenty-two post-graduate students from many countries were trained for periods varying from four months to eight months — Forty-eight student nurses from the Royal Victoria Hospital were each given two months experience and teaching.

Two members of the Staff, Miss Irene Herden and Miss Caroline Wacowich, are taking the two year Degree Course in Hospital Administration and Teaching at the School for Graduate Nurses, on Federal-Provincial Scholarships, and another, Miss Irene MacMillan is working in the various neurosurgical centres in Great Britain for a year.

Our housing problems were greatly eased this last winter by having the use of the "Idler" house at the corner of University Street and Pine Avenue. It has meant so much to have some of our staff living together, and it has been such a help to the operating room staff, especially, when called for night emergencies, to be close to the Institute.

It is with great pleasure that I have to announce the gift of $5,000.00 to initiate a Scholarship Fund for the Nursing Staff, which has been given in memory of an old friend, the late Hartland B. MacDougall. We wish to thank Mrs. MacDougall and assure her that it will contribute greatly to keeping up the high standards of nursing services set by the nurses in the Institute.

DEPARTMENT OF SOCIAL SERVICE

MRS. JOSEPHINE CHAISSON

In 1950, 538 more services were given to patients than in 1949, a total of 2,053 interviews have taken place with patients or their families and social

information has been made available to our doctors through the 1,068 reports we have written. The number of reports almost exactly doubles last year's figures.

Seven hundred and fifty-eight of our patients also received services from 114 co-operating social agencies which included voluntary, provincial, federal and state welfare groups.

These seemingly innocent figures bear a direct ratio to the medical social workers' chronic occupational disease, namely, overtime. They also bear silent witness to the unselfish interest and devotion which staff members have unfailingly shown in attempting to meet our patients' needs.

Presentation of the social factors in illness to groups of graduate nurses and to students from the McGill School of Social Work formed a part of our year's over-all program. Included also were the two social study projects now in progress.

Through the generosity of the Federal and Provincial Governments it has been possible to continue the social study of our epileptic patients. Since December, 1950 Mademoiselle Gosselin has been carrying out a social study and evaluation of a group of epileptic patients with automatic behaviour. Case work with the multiple sclerosis patients is the primary responsibility of one of our staff members who is maintained by a much appreciated grant from the National Multiple Sclerosis Society of Canada.

Valuable hours of service have been given our department by the 8 volunteers who were recruited from the Montreal Junior League, the Jewish Junior League and the Women's Voluntary Services. These volunteers have provided typing, filing and clerical service in the social service office and the out-patient clinics amounting to a total of 83 full working days.

Throughout the past year we have endeavored to devise a more accurate and more meaningful statistical reporting system. Our purpose was to use our statistics for interpretation and self evaluation, and to achieve a more adequate picture of our work qualitatively as well as quantitatively. As a result of our revised system we have discovered that our services are not given equally to ward and clinic patients as we had previously thought. In reality, 63% of our total service is to ward patients and 37% to clinic patients.

During the 46 years in which medical social workers have been functioning, a belief has grown up that a large part of their work is related to the patient's financial difficulties. We, who do the work, know that this is no longer true. A recent review of case work services given to our patients here demonstrated that, over a three month period, financial difficulty was a major problem in only 30% of cases receiving service.

We have had a busy year and have played a small part in the treatment, teaching and research activities of the Institute.

Our wish is to grow in our understanding of the patients' needs that we may have increased capacities for helping him face the problem of his disease and its impact on his way of life.

DEPARTMENT OF ANAESTHESIA

DR. ANDRÉ PASQUET

The Department of Anaesthesia respectfully submits its first report. This day is welcomed by us, as it represents the successful conclusion of a long struggle by this specialty to attain the position of independence and self-respect which medical people consider their right.

The department is now on a solid foundation and is in the process of endeavoring to prove its newly won position.

These changes have enabled Dr. R. G. B. Gilbert to join the M.N.I. as a permanent member of the staff.

Dr. E. A. Pask, professor of anaesthesia at Durham University, England, spent over six months here, organizing and developing the research facilities of this department. During this time he has developed methods for measuring vital functions such as respiration, blood pressure, gastric motility and skin temperature gradients. As well as this, he has assisted several of the fellows in their own projects. He has given guidance in undertaking the problems now under investigation in this department.

(1) Study of induced hypotension in surgery.

(2) Study of the metabolic status of patients under prolonged operative conditions.

(3) Study of vital functions with cortical stimulation.

(4) Studies concerning tissue volume changes.

It is hoped that such work will go forward more rapidly when the resident problem, as it affects anaesthesia, has been solved.

Dr. E. Everitt has left for Vancouver after spending a year as resident, during which time she concluded, among other things, an able review of the literature on the cerebral circulation.

This department has been granted the privilege of holding the McGill anaesthesia seminars at the Institute. These have been well attended by students and visitors.

DEPARTMENT OF RADIOLOGY

DR. DONALD MCRAE

As in previous years, the clinical activities of the department have taken almost all of the time of the professional staff. The number of examinations increased very slightly. This was aided in great part by the replacement of the original X-ray unit by a completely modern and more powerful unit during the year 1950. Fluoroscopy and spot film radiography is now done with a rotating anode tube and is much more precise than ever before. The new fluoroscopic table can be tilted 135 degrees and it is no longer necessary to turn the patient end for end on the table during myelography. Photo-timing exposures are made

by the machine itself, the exposure being terminated by a photo-cell when the film is correctly exposed. The radiographer is relieved of the calculation of the exposure and can devote all her time to positioning and posturing the patient.

The teaching activities of the department have been expanded by the Dillon-Murphy X-ray film projector. This machine is in effect a giant lantern-slide projector cleverly adapted to project original radiographs with some forty diameters of magnification. This makes it possible for all members of the staff to see simultaneously the radiographs as well as if they held them in their hands. The neuroradiological colloquia can now reach an audience some ten times the previous size.

The residents in neuroradiology, Dr. R. Fraser, Dr. S. Miller and Dr. D. Albert, were drawn from the Diploma Course in Radiology of McGill University. Each man spent four months in this department. During this time they had the opportunity of carrying out a gross dissection of the brain, thus correlating the anatomy of the brain with the pneumographic and arteriographic appearances.

During the year 1950, 7,514 examinations were carried out using 36,912 films. This is a slightly greater number of examinations and films than in 1949. There were 892 pneumograms, 397 myelograms and 73 carotid arteriograms, making a total of 1,362 of these complex procedures, an average of 4½ each working day. It is only by working day and night that this number of examinations has been possible. It has caused some hardship but with the coming enlargement of the department it will be possible to enlarge the staff and to return to more normal working conditions.

DEPARTMENT OF NEUROCHEMISTRY

DR. DONALD MCEACHERN

DR. K. A. C. ELLIOTT

The routine work of the main laboratory and the two branch laboratories on the wards continues to increase. The number of biochemical determinations in the main laboratory was 6,810, and the number in branch laboratories was 4,820, making a total of 11,630.

The increasing recognition of the need to maintain a steady salt and water balance, in post-operative patients, has led to the purchase of a flame photometer. This will permit rapid determinations of sodium, potassium and other salts.

Continuing their interest in basic aspects of epilepsy, Dr. Elliott's group has devoted most of its time to a study of the metabolism of acetylcholine, a highly active substance intimately concerned with nervous activity.

Dr. Elliott and Mrs. Henderson studied factors which increase the amount of reserve, inactive acetylcholine present in brain, and factors which release the free, active substance. Mr. Elliott Brodkin has continued this work, showing that active acetylcholine can be returned to the inactive reserve and studying factors which affect this change. Mrs. Henderson left during the year, and has been replaced by Mrs. Eva Baker who is carrying on with her work.

Dr. Donald Tower has established a regular relationship between the activities of the enzymes of acetylcholine metabolism and the average brain size

of various animals, including man. There is also a possible relationship to the total nerve cell population. He has found an apparent "biochemical lesion" in focal epileptogenic tissue, consisting of an impaired ability to hold acetylcholine in the inactive form, and has carried out various experimental studies concerning this "lesion". Mr. Hugh McLennan has studied the effects of convulsant, narcotic and anti-convulsant drugs on acetylcholine production *in vitro* and has found effects on enzyme systems which might explain the pharmacological actions of these drugs. Both Dr. Tower and Mr. McLennan find that the toxic factor from "agenized" flour, a substance which causes a condition resembling epilepsy, produces biochemical effects in good accord with their other findings.

Dr. McEachern and Dr. Shy, with the technical assistance of Miss Brophy and Miss Landy, have studied the effect of cortisone in a group of 50 patients with various neuromuscular diseases. The results in some instances have been dramatic. A long-term study of the effect of wheat germ oil in 109 patients with various neurological disorders has been brought to completion after 15 long years of work in collaboration with Dr. William C. Gibson and Dr. Reuben Rabinovitch The interesting finding is that those conditions, e.g. menopausal muscular dystrophy, dermatomyositis, that responded to wheat germ oil therapy also responded, but in a more striking way, to cortisone. This brings up the point as to whether the results are due to the vitamin E content, or whether the wheat germ oil provides, from its steroids, building blocks for steroid hormones.

DEPARTMENT OF ELECTROENCEPHALOGRAPHY

DR. HERBERT H. JASPER

The clinical, research and teaching activities of this department have continued at an even pace during the past year. There have been 2,048 EEG examinations carried out on 1,515 patients. In addition there were 72 electrocorticograms. Of these patients 612 (40%) were from the wards of this Institute, and 368 (24%) from the wards or Outpatient Department of the Royal Victoria Hospital. The remaining 535 patients, or 35 percent, were referred from other hospitals or from physicians' private offices.

The distribution of diagnostic categories has been about the same as in previous years; almost half of the patients being those with epileptic seizures. The seizures in over one half of these patients were shown to be of focal cortical origin. Of the focal cases, over one half were found to have seizures arising in the temporal lobe.

Number of Patients in Diagnostic Groups

Epilepsy	709
Brain Tumour	185
Head Injury	91
Vascular Disease or Lesion	79
Migraine or Headache	53
Mental Disorder	47
Miscellaneous	221
Deferred	130

It is becoming realized more and more that the value of the EEG examination can be increased very much by "*reactive electroencephalography*". Changes in the electrical activity of the brain in response to standard sensory stimuli, reactions to the administration of pharmacological agents, reactions to changes in blood glucose, oxygen or CO_2 and the effects of anaesthesia and sleep often reveal abnormalities in cerebral function, which would not have been suspected from the record taken with the patient at rest under "normal basal" conditions. Slowly administered metrazol, and metrazol combined with intermittent photic stimulation have produced most interesting and valuable results in epileptic patients.

Our chief technician, Mr. Lewis Henderson, and his able assistant, Miss Lili Prisko, have added to their large patient-load, the training of four technicians and numerous Fellows during the past year. Technicians are sent by hospitals in different parts of Canada and the United States for the specialized training and experience afforded here.

Among the problems under investigation were the use of intermittent photic stimulation to activate epileptic discharge; measurement of alveolar CO_2 and blood glucose in relation to EEG changes during hyperventilation; EEG changes in migraine; analysis of EEG and electrocorticographic findings in relation to the results of surgical excision of epileptogenic lesions in the temporal lobe; the value of the EEG. in prognosis following the surgical treatment of epileptogenic lesions; studies of electrically silent seizures; EEG localization of parasagittal lesions; and the electrical measurement of spinal reflexes in man.

DEPARTMENT OF NEUROPATHOLOGY

DR. WILLIAM CONE

DR. ROY SWANK

During the year the pathological fellows prepared reports on 582 neurosurgical specimens and on 81 autopsies.

The research program of the department continued to be active. Dr. Igor Klatzo carried out a study of tumors of the glioblastoma type using the Golgi staining method.

Dr. Myles Gibson came to the laboratory as a graduate exchange fellow from Aberdeen University. He completed a study on the effect of Cortisone on the healing of experimental wounds of the brain.

Dr. Wenceslao Calvo's work in the laboratory was made possible by a Rockefeller Foundation Fellowship. He brought with him from Spain unusual skill and experience in the metallic methods and worked especially on the histology of the perivascular space.

Dr. Raymond Hain from the Department of Pathology at the University of Washington, Seattle, spent the year here at the request of Professor Lippincott and Professor Arthur Ward in the hope that he would add a neuropathological facet to his general pathology. He carried out a series of transplants of tumor to

the posterior chamber of the animal eye, reviewed tumors and prepared a table of their relative incidence. He worked with Dr. Roy Swank on experimental cerebral infarction and on the changes in the small vessels of the brain produced by emboli.

Dr. Peter Westhaysen managed to spend some time in the laboratory, working with Dr. Swank and Dr. Hain on problems of circulation. Dr. Revis Lewis continued his study of the pathological reactions of oligodendroglia.

DEPARTMENT OF NEUROPHYSIOLOGY

DR. HERBERT H. JASPER

The function of this department is twofold in relation to the research of the Institute as a whole: To conduct research in neurophysiology, and to provide animals, materials and surgical facilities for men carrying out research in other departments. There have been 13 fellows and 4 members of the staff engaged in neurophysiological research during the past year. In addition there have been 11 fellows and 2 staff men from other departments using the facilities of the neurophysiological laboratories, making a total of 24 fellows and 6 members of the staff working in the confines of these laboratories during the past year. There were 469 major operative procedures carried out (271 sterile) and over 124 minor procedures.

The principal theme of neurophysiological research has been *the functional interrelationship between the cerebral cortex and the brain stem,* with special reference to nervous mechanisms underlying states of consciousness, the elaboration of sensory impulses and their mode of projection from the sensory receiving areas of the cortex to higher levels of integration in the cortex and in the central integrative system of the brain stem, and mechanisms of motor facilitation and inhibition in cortical and subcortical structures. Included in these studies were investigations of the mechanisms of origin and spread of epileptic discharge in focal cortical and in subcortical structures.

Doctors Ajmone Marsan and Stoll have completed their studies of the functional interconnections between the tip of the temporal lobe and subcortical structures in cats and monkeys. Dr. Austin identified structures in the diencephalon and striatum which have a profound facilitatory or inhibitory effect upon cortically induced movements and upon spinal reflexes. Dr. Druckman has reviewed cortical mechanisms of inhibition and has failed to confirm the existence of local "suppressor" areas in the cortex which were supposed to have only an inhibitory function.

Dr. Pask, with Mr. Geddes, developed new techniques for continuous recording of blood pressure, respiration, skin temperature and gastric motility for studies carried out with Dr. Penfield on the representation of the autonomic nervous system in the cortex of man. He also completed a study with Dr. Austin on the effect of anaesthesia upon monosynaptic and polysynaptic cord reflexes.

Further analysis of corticofugal projections to the brain stem has been pursued by Doctors Markovich and Hunter in relation to myoclonic seizures induced by photic stimulation, and by Doctors Ajmone Marsan and Stoll with

special reference to a central integrative system in the brain stem (the "centrencephalic system" of Dr. Penfield) which has wide-spread connections with many areas of the cerebral cortex.

The development of refined electronic stimulating and recording equipment by our engineer, Mr. Geddes, and the purchase of more precise new equipment with the aid of a grant from the Provincial and Federal Governments have helped greatly in the progress of these studies.

DEPARTMENT OF NEUROANATOMY

DR. FRANCIS MCNAUGHTON

DR. JERZY OLSZEWSKI

During the past year, Dr. Earle has completed his experimental study of Lissauer's tract in the spinal cord. Dr. A. Dekaban is engaged in studying the development of the human thalamus, and incidental to this, is making an embryological collection which will be of great value for teaching and research. Dr. Olszewski has completed his Ph.D. Thesis on "An Atlas of the Thalamus of Macaca Mulatta for use with the Horsley-Clarke Instrument."

Dr. Olszewski has taken charge of Neurological Pathology, and while the amount of pathological material is not great, it is providing an opportunity for investigating problems in human neuroanatomy and histology.

Throughout the year, our technicians have prepared the histological sections of experimental material for the Department of Neurophysiology, and this collaboration has worked well for both departments.

The usual undergraduate and graduate courses in Neuroanatomy have been given during the teaching session. The advanced course in Neuroanatomy and Brain Modelling attracted an enthusiastic group of 9 graduates and was most successful.

We welcomed as special Neuroanatomical Lecturer this year Dr. Sam L. Clark, of Vanderbilt University, who spoke on "Some Aspects of the Experimental Approach to Cerebellar Function".

A summer studentship in neuroanatomy has been started this year for a two month period, open to a McGill medical undergraduate.

DEPARTMENT OF PHOTOGRAPHY

DR. JOHN KERSHMAN

The department has continued to expand and the total amount of work again increased during the past year. More particularly there was a great increase in the use of colour photography in the operating-room. Increased experience has led to more standard results and better pictures.

The use of speedlights in the operating room has also been a real advantage. It is now possible to eliminate all movement and obtain much clearer photographs.

A new enlarger has been procured which has the added advantage of making it possible to print the operating room photographs, originally taken through a mirror, in reverse, without losing any detail. These pictures will now be easier to interpret and more useful.

FELLOWS' LIBRARY

DR. FRANCIS MCNAUGHTON

The library has added 3 new journals to its subscription list. Allowing for journals which have ceased publication, our total is now 52 journals on neurology and related subjects. During the past year, 50 books have been purchased, and others have been acquired through the Medical Library Exchange.

Books were donated to the Library during the past year by Dr. Alec Barnum, Dr. W. Calvo, Dr. K. A. C. Elliott, Dr. F. Haddad, and Dr. W. Penfield.

The library will welcome the gift of books of neurological interest from Fellows and visitors at the Institute.

THE FELLOWS' SOCIETY

DR. REVIS LEWIS, *President*

DR. G. MILTON SHY, *Vice-President*

DR. JERZY OLSZEWSKI, *Secretary-Treasurer*

This year the Fellows' Society included some 37 members who, as usual, represent many nationalities. Both social and scientific contacts among the Fellows have proved to be of much mutual value.

Thanks to the generosity of Mrs. Lewis Reford and the late Dr. Lewis Reford in establishing the Lewis Reford Fellows' Fund, the Society has been able to acquire furniture, and to enjoy refreshments at the weekly scientific meetings.

At meetings which were held weekly, Fellows reported on their work-in-progress or on current related literature. In addition, the Society was fortunate in securing several outstanding guest speakers.

The speakers for the year were:

SIR HUGH CAIRNS, Oxford, England. "Consciousness and Memory".

DR. J. G. GREENFIELD, London, England. "Pathology of Head Injury", and "Encephalitis in Childhood".

SIR GEOFFREY JEFFERSON, Manchester, England. "Cerebral Aneurysms".

DR. J. MCCORRISTON, Montreal. "Electrolyte Balance in Surgical Patients".

DR. F. C. GRANT, Philadelphia, Penn. "Surgical Treatment of Pain".

MONTREAL NEUROLOGICAL SOCIETY

1950-1951

DR. WILDER PENFIELD, *Chairman*

DR. HERBERT JASPER, *Vice-Chairman*

DR. PRESTON ROBB, *Secretary-Treasurer*

Meetings of the Section of Neurology of the Montreal Medico-Chirurgical Society were held bi-monthly from September 7th to January 24th. In February, a series of scientific meetings were started in which fellows of the Institute and

members of Staff presented subjects on which they had been working. As had been the custom of the Society in the past, meetings were again held weekly. During the year, Clinical Conferences were held at the Montreal Neurological Institute, the Montreal General Hospital, the Hotel Dieu, and Notre Dame Hospital, at which an interesting selection of clinical problems was presented.

The following addresses were given before the Society during the year 1950-51:

SIR GEOFFREY JEFFERSON, University of Manchester. "A Postcript to Descartes' Treatise on the Localisation of the Mind".

ASSOCIATE PROFESSOR B. DELISLE BURNS, McGill University. "Properties of Isolated Mammalian Cerebral Cortex"

DR. C. MILLER FISHER. "Senile Dementia, A New Conception of Etiology with Clinical and Pathological Evidence".

SIR CHARLES SYMONDS, London. "Migrainous Variants".

DR. F. P. NAGLER, Department of Health and Welfare. "Recent Work on Neurotropic Viruses".

PROFESSOR THEODORE RASMUSSEN, University of Chicago. "Stimulation Studies and the Cerebral Cortex".

DR. KENNETH EARLE and DR. MAITLAND BALDWIN. "The Temporal Lobe I: Anatomy and Development in Relation to Temporal Lobe Epilepsy".

DR. JULIUS STOLL and DR. C. AJMONE MARSAN. "The Temporal Lobe II: Subcortical Connections in Relation to Temporal Lobe Seizures".

DR. JOSEPH LILIENTHAL, JR. Johns Hopkins University. "Quarternary Compounds and Neural Activity".

PROFESSOR SAMUEL L. CLARK, Vanderbilt University. "Some Comments on the Experimental Approach to Cerebellar Function"

DR. KENNETH EARLE. "Lissauer's Tract"

DR. JERZY OLSZEWSKI. "The Anatomy of the Thalamus".

DR. C. MILLER FISHER. "Senile Dementia, A New Conception of Etiology with Clinical and Pathological Evidence".

DR. DONALD MCEACHERN. "The Clinical Entity of Menopausal Muscular Dystophy".

DR. G. MILTON SHY. "Results of the Use of Cortisone in Neuromuscular Disease".

MR. HUGH MCLENNAN. "A Possible Chemical Basis for the Action of Neurotropic Drugs".

DR. K. A. C. ELLIOTT. "Memorial to Thudidium. The Development of Neurochemistry."

DR. FRANCIS O'BRIEN. "The Syndrome of Cerebral Cortical Venous Thrombosis".

DR. HONOR V. SMITH, Oxford, England. "The Treatment of Tuberculous Meningitis".

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. Again, we list these distinguished lecturers in this report.

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".

1949 DR. H. CUTHBERT BAZETT.
"Blood Temperature in Man and its Control".

1950 DR. J. GODWIN GREENFIELD.
"The Pathology of the Cerebellum and Related Motor Pathways".

DEPARTMENT OF GRADUATE STUDIES AND RESEARCH

DR. HERBERT JASPER, *Chairman.*

With the steady increase in post-graduate Fellows there has been an increase in systematic courses of instruction; though perhaps the most valuable instruction may still take place informally, in the close daily contacts between Fellows and Staff. The Seminar in Neuroanatomy and Neurophysiology has become even more closely integrated this year and the Fellows have played a more active role in the presentation of material and in the discussions which follow. The cooperation of Professor MacIntosh and his Staff, and the final seminars by Professor Penfield were most valuable contributions. A new course has appeared under the guidance of Dr. Shy and Professor McNaughton called a "Colloquium in Clinical Neurology"; it has been well received by the Fellows. More systematic courses in Neuropathology and in Neurological Roentgenography have also been given during the past year.

Advanced degrees were granted this year to eleven Fellows as follows:

DOCTOR OF PHILOSOPHY

Thesis

OLSZEWSKI, Jerzy (Neuroanatomy)	"An Atlas of the Thalamus of Macaca Mulatta for Use with the Horseley-Clarke Instrument".
TOWER, Donald B. (Neurochemistry)	"A Study of the Acetylcholine System in the Cerebral Cortex of Various Mammals and in the Human Epileptogenic Focus and in Certain Factors which Effect its Activity".
MCLENNAN, Hugh (Neurochemistry)	"Factors Effecting the Synthesis of Acetylcholine by Brain Tissue Preparation". (Dept. of Biochemistry)
WEBB, James (Neurochemistry)	"Effects of Narcotics and Convulsants on Brain Tissue Metabolism". (Dept. of Biochemistry)

MASTER OF SCIENCE

Thesis

AUSTIN, George M. (Neurophysiology)	"An Investigation of the Facilitatory and Inhibitory Activity of the Suprabulbar Regions of the Cat".
STRATFORD, Joseph (Neurophysiology)	"A Study of Certain Cortico-thalamic Relationships".
EARLE, Kenneth M. (Neuroanatomy)	"The Tract of Lissauer and Its Possible Relations to the Pain Pathway".
GIBSON, R. Myles (Neuropathology)	"The Effect of Cortisone in the Healing of Incised Cerebral Wounds"

ROSEN, Harold (Neuropathology)	"Influence of Massage on Rate and Down Growth of Regenerating Axons".
LI, Choh-Luh (Neuroanatomy)	"Anatomical Study of Fiber Connections of the Temporal Pole in the Cat and the Monkey".
Van BUREN, John (Neurophysiology)	"The Cortical Representation of the Feeding Reflex".

CLINICAL APPOINTMENTS AND FELLOWSHIPS*

Appointments to the Resident Staff in Neurology or Neurosurgery are made for July 1 or January 1. All candidates are expected to have had previous interneships in Medicine or Surgery.

The posts of Senior Resident in Neurosurgery, Resident in Neurosurgery and Resident in Neurology are available only to men who have had previous clinical service in this Institute.

Assistant Resident in Neurosurgery — One year's duration -- available January 1st and July 1st.

Assistant Resident in Neurology — six to twelve months' duration — available January 1st and July 1st.

Appointments for periods of research and training in one of the laboratories are made by the Director and the Chief of the laboratory in question. It is a general rule that no research stipends are available to a graduate student during his first year of research unless he is appointed to one of the following fellowships:

Senior Fellowship in Neuropathology — Twelve months' duration — available July 1st.

Junior Fellowship in Neuropathology — Six months' duration — available July 1st and January 1st.

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.

Fellowship in Neuroanatomy — 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.

*Graduate physicians or surgeons who wish to be enrolled in clinical or scientific work, as something more than an observer, must fill out application forms obtainable from the Registrar, and provide names of reference.

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 — 3 hours weekly (12 weeks)

1. Lectures, demonstrations and discussions.
2. Construction of brain model by selected group.

Two evenings, beginning in November.. Associate Professor McNaughton

*B. SEMINAR IN NEUROPHYSIOLOGY — 4 hours weekly (12 weeks)

Laboratory demonstrations, lectures and discussions. Mondays, 5-6 and 8-10 p.m., beginning in November ..... Professor Jasper

*C. CONFERENCE IN CLINICAL NEUROLOGY — 1 hour weekly.

Clinics and Lectures. Wednesdays, 5 p.m. ... Assistant Professor McRae

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

*E. SEMINAR IN NEUROPATHOLOGY — 1 hour weekly (52 weeks).

Gross and microscopic demonstration to be supplemented by collateral work. Fridays, 5 p.m..... Professor Penfield and Professor Cone

*F. SEMINAR IN NEUROCHEMISTRY.

1. Fundamental — 11 hours. Lectures and discussions.
   Assistant Professor K. A. C. Elliott
2. Applied — 4 hours. Demonstrations Associate Professor McEachern

G. COLLOQUIUM IN CLINICAL NEUROLOGY, 1 hour weekly.

Discussions. Saturdays, 12 noon . Associate Professor McNaughton

H. COLLOQUIUM IN NEUROLOGICAL ROENTGENOLOGY, 1 hour weekly.

Mondays, 9 a.m. ..... Assistant Professor McRae

I. COLLOQUIUM IN EXPERIMENTAL AND CLINICAL NEUROLOGY, 1 hour.

Discussions and lectures before Fellows' Society..... Dr. J. Preston Robb

*Acceptable for credits in M.Sc. and Ph.D.

DONATIONS

To M. N. I. Miscellaneous Contributions Fund:

Mrs. William Bloom	$100.00

To Clinical Relief Fund:

Miss Suzanne F. Cohen	10.00
Master Norman Bernstein	100.00
Master Stanley Margolese	100.00
Miss Y. Handler	5.00

To Viobin Research Fund:

Viobin Company	500.00

To H. A. Springle Fund:

Mrs. H. A. Springle	500.00

To M. N. I. Special Travel Fund:

Mrs. H. A. Springle	500.00

To Cone Research Fund:

Mr. A. D. Crews	250.00
Mr. H. Postelnick	100.00
Mr. S. Kellert	500.00
Mr. E. G. Gowling	250.00
Mr. and Mrs. J. Aron	50.00
Dr. J. R. Dodds	200.00
Mr. & Mrs. J. Lupovich	100.00

PUBLICATIONS

1950-51

ROMA AMYOT:

Paralysie cubitale tardive secondaire à un traumatisme du coude. L'Union Médicale du Canada, 79: 14 (Janvier) 1950.

Le syndrome neurologique et hépatique de la dégénérescence hépato-lenticulaire. L'Union Médicale du Canada, 79: 372 (Avril) 1950.

Céphalée orbito-frontale et ophthalmoplégie par anévrisme carotidien intracrânien. L'Union Médicale du Canada, 79: 756 (Juillet) 1950.

De la psychiatrie à la neuro-chirurgie par la neurologie. L'Union Médicale du Canada, 79: 892 (Août) 1950.

BORIS B. BABKIN:

Central and Reflex Regulation of Motility of Pyloric Antrum. J. Neurophysiol., 13: 321-334, 1950 (with W. Kite).

Gastric Motor Effects of Acute Removal of Cingulate Gyrus and Section of Brain Stem. J. Neurophysiol., 13: 335-342, 1950 (with W. Kite).

CLAUDE BERTRAND:

Le traitement de l'hématome sous-dural chez l'enfant. L'Union Médicale, 79: 1274.

HAROLD ELLIOTT:

Spinal Cord Injuries Accidentally Produced or Due to Missiles. D.V.A. Treatment Services Bulletin, February, 1950.

Preliminary Reports on Prefrontal Lobotomy (Part I). Experiences with Prefrontal Lobotomy (Watt's Procedure). Preliminary Report from the General and Surgical Aspects. D.V.A. Treatment Services Bulletin, April, 1950 (with T. E. Dancey).

Massive Cellulitis of the Scalp in Persons with Diabetes. Arch. Surg., 60: 897-905, 1950 (with J. Moore and J. Gerrie).

Peripheral Nerve War Wounds. D.V.A. Treatment Services Bulletin, September, 1950.

Preliminary Note on Transorbital Lobotomy — A Warning. D.V.A. Treatment Services Bulletin, October, 1950 (with H. Beardmore).

An Appreciation (Dr. O. W. Stewart). Canada. M.A.J., 63: 1950.

K. A. C. ELLIOTT:

Effects of Anesthetics and Convulsants on Acetylcholine Content of Brain. Am. J. Physiol., 162: 469-474, 1950 (with R. Swank and Nora Henderson).

Effects of pH, Bicarbonate and Co-factors on the Metabolism of Brain Suspensions. J. Biol. Chem., 180: 73-86, 1951 (with Marion K. Birmingham).

See Hugh McLennan, Joint Author.

R. G. B. GILBERT:

Trichlorethylene — The McGill Vaporizer. Canad. M.A.J., 62: 604-605, 1950 (with E. Asquith and W. Bourne).

JOHN HUNTER:

A Stimulus Indicator for Cinematographic Procedures. Journal of Biological Photographic Society, May, 1950, pp. 92-93.

Further Observations on Subcortically Induced Epileptiform Attacks in Unanesthetized Animals. EEG Clin. Neurophysiol., 2: 193-201, 1950.

An Experimental Study of the Mechanism of Photic Activation in Idiopathic Epilepsy. EEG Clin. Neurophysiol., 2: 263-287, 1950 (with H. Gastaut).

IRA JACKSON:

Chronic Extradural Hematoma. J. Neurosurg., 7: 444-447, 1950 (with T. Speakman).

HERBERT JASPER:

The Electroencephalogram in Multiple Sclerosis. A. Research Nerv. & Ment. Dis. Proc. (1948), 28: 421-427, 1950 (with R. Bickford and O. Magnus).

EEG and Cortical Electrograms in Patients with Temporal Lobe Seizures. Arch. Neurol. & Psychiat., 65: 272-290, 1951 (with B. Pertuiset and H. Flanigin).

See Norman Sloan, Joint Author.

JOHN KERSHMAN:

The Significance of an Abnormal E.E.G. in Patients with Psychoneuroses. Tr. Am. Neurol. A., 1950, pp. 261-263 (with J. Vasquez).

The Incidence of Focal and Non-Focal Abnormalities in Clinical Epilepsy. EEG Clin. Neurophysiol., 1: 15-24, 1951 (with J. Vasquez and S. Goldstein).

Encephalosyncope or Larval Epilepsy: a follow-up. EEG Clin. Neurophysiol., 2: 169-176, 1951 (with R. Hunter).

ROBERT KNIGHTON:

The Thalamic Relay Nucleus of the Second Somatic Sensory Receiving Area in the Cortex of the Cat. J. Comp. Neurol., 92: 183-191, 1950.

DONALD LLOYD-SMITH:

The Electroencephalogram During Hyperventilation Followed by Apnoea. EEG. Clin. Neurophysiol., 2: 289-296, 1950.

DONALD MCEACHERN:

The Early Diagnosis of Spinal Cord Lesions. Canad. M.A.J., 64: 1-3, 1951.

Diseases and Disorders of Muscle Function. Bull. N.Y. Acad. Med., 27: 3-23, 1951.

Advances in the Neuromuscular Disorders. In Advances in Internal Medicine, vol. 4, 1950, pp. 201-272 (with R. Rabinovitch).

See G. Milton Shy, Joint Author.

HUGH MCLENNAN:

Factors Affecting the Synthesis of Acetylcholine by Brain Slices. Am. J. Physiol., 163: 605-613, 1950 (with K. A. C. Elliott).

FRANCIS MCNAUGHTON:

Recent Progress in Neurology. McGill Med. J., 19: 188-191, 1950.

WILDER PENFIELD:

The Supplementary Motor Area in the Cerebral Cortex of Man. Arch. f. Psychiat. u. Neurol., 185: 670-674, 1950.

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Obituary — Dr. Boris Babkin. Proc. Roy. Soc. Canada, 1950, pp. 65-68.

Surgical Therapy of Temporal Lobe Seizures. Arch. Neurol. & Psychiat., 64: 491-500, 1950 (with H. Flanigin).

The State and Medical Research. An Address to the Voluntary Health Committee of the Senate and the House of Commons, May 3, 1950. Health Magazine, July-August, 1950.

See K. Welch, Joint Author.

JERZY OLSZEWSKI:

On the Anatomical and Functional Organization of the Spinal Trigeminal Nucleus. J. Comp. Neurol., 92: 401-413, 1950.

Cécile and Oskar Vogt. Arch. Neurol. & Psychiat., 64: 812-822, 1950.

JEAN SAUCIER:

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On the Patient. Canad. M.A.J., 63: 392-395, 1950

G. MILTON SHY:

The Effects of Cortisone in Certain Neuromuscular Disorders. J.A.M.A., 144: 1353-1358, 1950 (with S. Brendler, R. Rabinovitch and D. McEachern).

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NORMAN SLOAN:

The Regulatory Action of the Anterior Limbic Cortex upon the EEG. EEG Clin. Neurophysiol., 2: 317-327, 1950 (with H. Jasper).

ROY SWANK:

Respiratory Impairment and Pulmonary Complications in Paralyzed States: A Method for Early Detection. Ann. Int. Med., 32: 229-242, 1950.

The Effect of Starvation on the Myelin Sheaths of the Peripheral Nerves of Rats. A. Research Nerv. & Ment. Dis. Proc. (1948), 28: 133-142, 1950 (with O. Bessey).

Multiple Sclerosis: A Correlation of Its Incidence with Dietary Fat. Am. J. Med. Sci., 220: 421-430, 1950.

Effects of Fat Meals and Heparin on Blood Plasma Composition as Shown by Paper Chromatography. Soc. Exper. Biol. & Med., 75: 850-854, 1950 (with A. Franklin and J. Quastel).

Paper Chromatography of Blood Plasmas in Multiple Sclerosis. Proc. Soc. Exper. Biol. & Med., 76: 183-189, 1951 (with A. Franklin and J. Quastel).

Changes in Blood Produced by a Fat Meal and by Intravenous Heparin. Am. J. Physiol., 164: 798- , 1951.

See K. A. C. Elliott, Joint Author.

KEASLEY WELCH:

Paradoxical Improvement in Hemiplegia Following Cortical Excision. J. Neurosurg., 7: 414-420, 1950 (with W. Penfield).

Nervous System Generally:

Neurosyphilis	7
Multiple sclerosis	61
Motor neurone disease	11
Myasthenia gravis	4
Chorea	5

Meninges:

Meningocoele or myelomeningocoele	24
Acute purulent meningitis	6
Tuberculous meningitis	5
Spontaneous subarachnoid haemorrhage	13
Headaches	34
Subdural haematoma	21
Epidural heamatoma	7
Cerebrospinal fluid rhinorrhea	5
Miscellaneous	16

Brain:

Congenital anomalies	8
Hydrocephalus	27
Brain abscess	7
Cerebral concussion	44
Cerebral contusion and/or laceration and encephalopathy	39
Epilepsy	309
Migraine	16
Hypertensive encephalopathy	14
Encephalopathy chronic and of undetermined etiology	17
Cerebral arteriosclerosis	10
Cerebral haemorrhage, thrombosis or embolism	43
Intracranial aneurysm	11
Cerebral atrophy	14
Syncope	7
Miscellaneous	19

Tumours:

Glioma	106
Perineurial fibroblastoma	11
Meningeal fibroblastoma	14
Pituitary adenoma	11
Craniopharyngioma	3
Unclassified tumour	10
Unverified tumour and tumour suspects	30
Secondary tumour of brain and spinal cord	22
Haemangioma	7
Miscellaneous tumour C.N.S. and body generally	17
Third ventricle tumour	6

Spinal Cord:

Syringomyelia	9
Compression of the spinal cord	8
Acute myelitis	5
Miscellaneous	14

Cranial and Peripheral Nerves:

Papilloedema, unknown cause	5
Trigeminal neuralgia	51
Menière's syndrome	17
Lesions of the brachial plexus and branches	7
Multiple neuritis	7
Other neuralgias	19
Traumatic peripheral nerve lesions	14
Neuropathy of undetermined etiology	7
Miscellaneous	8

Mental Diseases:

Mental deficiency	6
Psychoneurosis	46
Presenile dementia	4
Miscellaneous	9

Other Systems:

Congenital anomalies of spine	21
Herniation of the intervertebral disc (cervical)	37
Herniation of the intervertebral disc (lumbar)	213
Discogenic disease	13
Fracture of the skull	106
Fracture and/or dislocation of the vertebral column	27
Lacerations, contusions, abrasions and/or haematomas	11
Intractable pain	7
Destructive lesion vertebrae and skull undetermined etiology	7
Muscular dystrophy	14
Miscellaneous	156

CLASSIFICATION OF OPERATIONS

Craniotomy	
and biopsy	5
and decompression	1
and drainage of abscess	7
and drainage of cyst	1
and drainage of subdural haematoma	17
and drainage of intracerebral haematoma	3
and drainage of extradural haematoma	6
and excision of epileptogenic focus	58
and excision of aneurysm	1
and exploration	12
and plastic repair of dura	8
and plastic repair of skull	2
and removal of tumour	121
and rhizotomy	17
and lobectomy	8
and removal of affected bone flap	1
Trepanations	15
and biopsy	4
and drainage of subdural space	8
and ventriculography	19
Elevation depressed skull fracture	47
Plastic repair of skull defect	2
Suture of lacerated wound of scalp	8
Ventriculocisternostomy (Torkildsen)	8
Discoidectomy	
cervical	12
lumbar	110
with wire fusion	51
with bone fusion	4
Laminectomy or Hemilaminectomy	
and anterolateral chordotomy	7
and biopsy	2
and decompression of spinal cord	5
and exploration	7
and incision and drainage intramedullary cyst	2
and removal of adhesions	1
and removal of tumour	14
and rhizotomy	8
and spinal fusion	10
and spinal fusion with bone graft	13
and cervical-occipital fusion with wire	2
and cervical-occipital fusion with bone	2
Sympathectomy (Hypertension)	
Supradiaphragmatic ganglioneurectomy unilateral	2
Sympathetic ganglioneurectomy	
Dorsal	3
lumbar	1
Plastic repair of cranium bifidum	8
Plastic repair of spina bifida	17
Cerebral arteriography, percutaneous	57
Cerebral arteriography, by exposure	32
Ligation of artery	6
Removal of neuroma	1
Nerve avulsion	2
Nerve anastomosis	6
Nerve suture	5
Re-opening of wound with exploration	11
Re-opening of wound with evacuation of haemorrhage	4

Re-opening of wound with removal of bone flap	5
Re-opening of wound with repacking	17
Miscellaneous	48
Plaster cast	33
Diagnostic spinal	6
Tic injection	5
Shunts	
ventriculo-peritoneal	21
spinal subarachnoid-peritoneal	1
TOTAL	823

CHIEF DIAGNOSIS IN FATAL CASES

Intracranial tumour	37
Craniocerebral injury	26
Ruptured congenital aneurysm	1
Tuberculous meningitis	1
Cerebral thrombosis	5
Purulent meningitis	1
Metastatic tumours to spinal cord	1
Fracture dislocation of spine	3
Encephalopathy of undetermined cause	1
Encephalitis, acute	1
Epilepsy	2
Cause unspecified	1
Stenosis of aqueduct of Sylvius	2
Subdural abscess	1
Disseminated sclerosis	1
Subarachnoid haemorrhage due to hypertension	1
Cerebral arteriosclerosis	1
Arterio-venous aneurysm of carotid	1
Glomerulonephritis with bronchopneumonia	1
Brain abscess	1
TOTAL	89

ITEMS OF INTEREST

An outstanding event of the year was the M.N.I. ski weekend held on January 27th and 28th, at the Alpine Inn, Ste. Margaret's, Quebec. It was the occasion of Dr. Penfield's birthday. One could not help but be impressed with the world-wide nature of the Institute when congratulatory messages were read from India, Australia, South Africa, England, Scotland, France, Norway, South America, the United States, and Canada.

As well as the Staff and Fellows of the Institute, we were pleased to have Dr. Francis Grant, Dr. Earl Walker, Dr. Francis Echlin, Dr. Bert Selverstone, Dr. James White, Dr. Theodore Rasmussen and Dr. Thomas Hoen join the party. It was truly a memorable occasion.

Dr. Penfield was presented with Gastronomie by Ali Bab, a book long searched for with a chapter by Babinski on the treatment of obesity; with a sail, which bore the emblem of the astrocyte, in the hope that he might win some races during the summer; and with a pair of silver bowls. The words engraved expressed the feeling of all the members of the family, both here and abroad — "With affection and esteem".

We are glad to welcome, as Consulting Neurologist, Dr. Sylvio Caron. He is Superintendent of the Clinique Roy Rousseau, Chief of the Neurological Service at the Hôtel Dieu Hospital, and Consultant Neurologist in the Veterans' Hospital in Quebec City.

We are also glad to welcome Dr. Jean Sirois, as Adjunct Neurosurgeon. He is in charge of Clinical Neurosurgery, Laval University, Chief of Neurosurgical Services at the Enfant Jésus Hospital, Clinique Roy Rousseau and St. Michel l'Archange Hospital. He is also Consultant Neurosurgeon at the Hôtel Dieu, St. Sacrament, St. François d'Assise and the Jeffery Hale Hospital, Quebec City.

Dr. William Cone was elected to the office of President of the Society of Neurological Surgeons, at their meeting in Rochester, Minnesota; also, Dr. Penfield to the office of President of the American Neurological Association.

Dr. Penfield was awarded the Chevalier de la Légion d'Honneur on July 24, 1950, and the presentation was carried out on May 14, 1951, on the cruiser Jeanne d'Arc in Montreal Harbour.

In June, 1951 at the meeting of the Royal Society in Montreal, Dr. Penfield was awarded the Flavelle medal.

The Montreal Neurological Institute Women's Social Auxiliary continued to function actively under the presidency of Mrs. William Feindel.

We are happy to record the marriage of Dr. Igor Klatzo and Miss Barbara Inwood. Dr. Klatzo is shortly leaving the Institute to continue his work next door in the Pathological Institute.

Dr. Russel's many friends will be pleased to hear that he is in good health, attends all the meetings, and continues to stimulate us.

It is with pleasure and pride, we report that Dr. K. A. C. Elliott has been awarded the Doctor of Science Degree by Cambridge University, England.

In March of 1950, the E.E.G. Department was again the host of the Eastern E.E.G. Association for the Annual E.E.G. Ski Weekend in the Laurentians. In addition to the active scientific program, there was keen competition for the ski trophies won by Dr. William Feindel and Dr. Richard Masland.

During the year, Dr. Russell retired as Chairman of the Medical Advisory Board of the Multiple Sclerosis Society of Canada. Dr. McEachern was elected to fill his place. The latter has also been appointed to the Medical Advisory Boards of the National Multiple Sclerosis Society and the Muscular Dystrophy Association, Inc., in the United States.

Outstanding at the Biennial Convention of the Canadian Nurses' Association in Vancouver, was the demonstration of neurosurgical nursing procedures put on by Miss Alice Major, assisted by Miss Elizabeth Long and Miss S. Langevin.

Mr. Hugh McLennan won his Ph.D. degree during the year and also a National Research Council post-doctorate Overseas Research Fellowship. He will be continuing his studies at University College, London, during the coming year.

Dr. Donald Tower also won his Ph.D. degree and the coveted Markle Scholarship in Medical Science.

Dr. Jerzy Olszewski was awarded the Ph.D. degree.

Among the distinguished neurologists who came to us for varying periods of study in electroencephalography and neurophysiology were: Professor Henri Gastaut and Mrs. Henri Gastaut of Marseille; Dr. Fanny Bartschi-Rochaix and Dr. Werner Bartschi-Rochaix of Berne, Switzerland; Dr. Kenan Tukel and Dr. Maida Tukel of Istanbul, Turkey; Dr. Bernard Pertuiset and Dr. Michelle Dell of Paris, France; Dr. John Churchill of Philadelphia; Dr. Donald Bickers of Georgia; Dr. J. R. Riives of St. John, N.B.; Dr. Stobo Pritchard of Toronto, and Dr. Maurice Parsonage of Leeds, England.

IN MEMORIAM

OSCAR WILHELM STEWART, B.S., M.D. (Oklahoma). Neurosurgical assistant at the Massachusetts General Hospital, Assistant Resident and Fellow of this Institute, Neurosurgeon of the Canadian Army Neurological Unit in England.

On active duty, he developed tuberculosis. After a gallant fight for life and for the chance to realize his high ambition in Medicine, he died, aged 34 years, a neurosurgeon of the greatest promise.