Nineteenth Annual Report

of the

MONTREAL NEUROLOGICAL INSTITUTE

and the

DEPARTMENT OF NEUROLOGY AND NEUROSURGERY

McGILL UNIVERSITY 1953-54

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REPORT OF THE DIRECTOR*

Wilder Penfield

Mr. Principal: It was in October 1933 that the Governor General of Canada, Lord Bessborough, laid the cornerstone of the original building of this Neurological Institute and a year later the Chancellor, Sir Edward Beatty, formally opened it. Dr. Gordon Holmes of London and Dr. Harvey Cushing of Boston gave Foundation Lectures and each painted his own picture of the future of Neurology.

Last November, nineteen years later, we celebrated the Second Foundation of this Institute with pomp and circumstance. The Governor General, Mr. Vincent Massey, opened the McConnell Wing and Dr. Alan Gregg gave the Second Foundation Lecture. Former Fellows, members of the staff and distinguished colleagues from many Universities united with us to celebrate this enlargement and re-organization, this second birth of the M.N.I.

Two new plaques have now been placed in the entrance hall which read as follows:

McGILL UNIVERSITY records its lasting gratitude to those who contributed towards the erection of THE McConnell Wing of the Montreal Neurological Institute and its appreciation of the generous support from the PROVINCE OF QUEBEC AND CITY OF MONTREAL towards the cost of caring for the sick

In May 1953

THE LILY GRIFFITH MCCONNELL FOUNDATION FOR NEUROLOGICAL RESEARCH.... was established as a permanent endowment of basic science in the Montreal Neurological Institute through the farseeing generosity of Mr. and Mrs. J. W. McConnell "Mercy and truth Are met together"

*Presented at the Annual Meeting of the Montreal Neurological Institute May 19, 1954. Principal F. C. James presided. A portrait of Mr. J. W. McConnell, painted by Alphonse Jongers, now hangs in the corridor of the new Wing. He has made the fulfillment of the destiny of this Institute possible, and it is good that he should seem to be here with us.

A painting of Mrs. Lily Griffith McConnell by Robin Watt, has been hung in the quiet seclusion of the Fellows' Library where it will serve to remind us of the enlarged opportunity and greater security that has come to our research because of the endowment that bears her name.

It was almost 20 years ago that the Department of Neurology and Neurosurgery of the Royal Victoria Hospital moved across University Street into the new Institute and McGill University established here its academic department of the same name. The Montreal Neurological Institute became then, and has continued to be, a conjoined University and Hospital project, a remarkable example of cooperative effort. Soon it was recognized in its own right as a professional unit throughout Canada and even beyond.

It is now of the utmost importance to reaffirm and to strengthen the bonds of friendly understanding and cooperation between us and all the other departments of the Royal Victoria. No clinical Institute should stand by itself for there is grave danger of a narrowing perspective.

It gives us great pleasure to announce that The Women's Auxiliary of the Royal Victoria Hospital has created a new Committee which will turn its attention to our needs. Mrs. Sidney Dawes, President of the Auxiliary, announces the Officers of the M.N.I. Committee to be as follows: Mrs. Ronald Riley, Chairman; Mrs. Peter Laing, Vice-Chairman; Mrs. Antonio Barbeau and Mrs. Kenneth B. Johnston, French speaking Vice-Chairmen.

This is a time of expansion. The Institute now has 136 beds and it was built originally to house 50 patients. This is a time also in which to carry out the re-organization that is demanded by our greater size and that is made possible by our added scientific endowment.

Twenty years ago Dr. Cone and I came into this Institute to take charge of Neurosurgery and Dr. Colin Russel and Arthur Young took over Neurology with the help of Fred Mackay of the Montreal General and Antonio Barbeau of the Hôtel Dieu, Jean Saucier and Roma Amyot of Hôpital Notre Dame. Miss Eileen Flanagan assumed the responsibility of Nursing Administration. Since then, however, many new men, younger men, have been added in the clinical disciplines and in new-formed laboratories.

It was through the original recommendation of Dr. Alan Gregg that, in 1931, the Rockefeller Foundation launched the project of this Institute with a donation of one and a quarter million dollars. In his Second Foundation Lecture last November he referred to the process of "recruitment" by which the staff of an Institute grows in strength and number. But he coined a new word "decruitment" to describe what he considered to be an equally important process, a process by which men leave an organization in orderly sequence.

In his concluding paragraphs he paid a high tribute to this Institute, a tribute we prize now, and will remember always:

"If I were asked," he said, "to name a single grant that the Medical Sciences Division of the (Rockefeller) Foundation has made since 1931, that I consider ideal in purpose, in performance, in local response and in national and international influence, and in the character of our relationships maintained from the very beginning, I would say without a moment's hesitation the grant to the Neurological Institute of McGill University".

He then went on: "In this Neurological Institute, the Staff, the Chief and the Trustees are so beautifully fused into one shining amalgam that if I were to name one to thank I would be naming you all who have worked with him, for him and through him, and if I were to name all of you it would come to the same thing — for you are all the Neurological Institute of McGill University, each to the other, responsible, essential and inseparable."

So it is and I rejoice, in common with all the members of the Staff, in this comradeship, this synergy of effort and of aspiration. The undertaking has come to be more than the individual. Personal loyalties are strong but the needs of a common good are stronger. New men must come and old men must go smoothly with no lowering of objective, no faltering. Decruitment should balance recruitment especially at this time of re-organization and replanning.

Reasoning thus a year ago, I notified the Principal of my intention to resign. It was not that I wished to desert you, although there are other intriguing projects. It was because I knew that by statutory regulation, not more than three years could remain to me as Professor and only one as Neurologist and Neurosurgeonin-Chief of the Royal Victoria Hospital.

Consequently, an extramural nominating committee made up of leaders in our professional field (Stanley Cobb, Arnold Carmichael and James White) gave their advice to the Selection Committee of the University and Hospital. This is the pattern of nomination and selection that will, I hope, provide continuity of leadership through many generations to come.

It was a difficult period for Dr. Cone and me, for it was not so very long since we had planned the details of organization together. Now we watched while others cast the die. The result, however, is a happy one and the best purposes of this Institute have been served. It seems that we are to have recruitment, with no more than minor decruitment. My own load of academic and administrative responsibility is to be greatly lightened.

Dr. Cone will succeed me as head of our Department in the Royal Victoria and he will continue as Neurosurgeon in Chief in the Institute, while Dr. Francis McNaughton continues as Neurologist-in Chief. Dr. Preston Robb now becomes Assistant Director in charge of Hospitalization with the help of Mr. Donald Bain, Business Administrator and with the sage counsel of Dr. Gilbert Turner, Consultant in Hospitalization.

A distinguished Neurosurgeon will join our staff. Dr. Theodore Rasmussen is returning to Montreal on the first of June to occupy the Chair of Neurology and Neurosurgery which I am relinquishing. Since Dr. Rasmussen left our Staff, five years ago, he has served the University of Chicago with great success as Professor and Chief of their Neurosurgical Service. With all of these adjustments, and delegations of responsibility, Principal James has organized matters so that I shall not retire but instead will continue as Director of the Institute, Chairman of the Academic Department and Neurosurgeon.

Thus I shall be able to turn my mind, with less diversion, to many things the mysteries of the temporal lobe, the organization of speech, the mechanisms of epilepsy, of memory, of consciousness. These are fascinating problems. They call for another lifetime of study, to say the least!

Now, after the Second Foundation and the attendant re-organization each member of staff will turn, I hope, in his own way to his own sphere of interest and responsibility, with greater latitude and renewed zeal so that Gregg's words to us may continue to be true: "You are all the Neurological Institute, each to the other, responsible, essential and inseparable."

PROVINCIAL AND FEDERAL SUPPORT

During recent years it has been my custom to devote the final paragraphs of the Annual Report to some aspect of the relationship of this Institution to the City, the Province and the Nation. It is proper that we should report directly to the public that we serve and upon whom we must depend, in the long run, for our support.

The Montreal Neurological Institute is a hospital but it is also an educational institute, a research unit, a department of McGill University.

All Universities are now in need of vastly increased financial assistance because of rising costs, and also because the world is calling more urgently than ever before for intellectual leadership. At the same time the opportunities for creative work are so much greater than ever before.

Governors of institutions of higher learning seem to accept gratefully any form of support for enlarged activity because they believe they have no choice. They seem to be prepared to enter into an annual scramble for short term grants, from the hand of any government or foundation or private individual, without regard to consequences and without thought of future implications.

On the other hand, the politicians who control the nation's wealth, and who have it in their power to provide the additional funds needed for higher education, are concerned with the problem of deciding which of our governments has the right to tax. Possibly some of them are interested only in securing the good will of the people by repeated gifts.

I would like to point out the serious consequences of the threatened decrease in the permanence of income for universities. Enlarging government support is, no doubt, inevitable and short term grants can be beneficial. But it is just as bad for universities, as for individuals, to go permanently "on the dole". There are better methods of support and the Federal Government, as well as the Provincial Governments, would do well to give some thought to this matter.

For basic, long term work such as is needed in studies of the nervous system short term gifts bring with them certain dangers. But please do not misunderstand me. Grants-in-aid of projects in the field of science are good, and in the field of the arts and letters they should be made more frequently. They are often essential to enable a group to answer the challenge of a new research opportunity and if the effort produces good ore the grant should often be followed by more permanent provision for support.

We have much experience of such transitions. The members of the Bronfman family who have done so much for good causes in Montreal have been making a generous and substantial annual contribution on a five-year basis for additional work in Neurophysiology in Dr. Herbert Jasper's laboratory. We are most grateful for this help and this stimulus. It has made possible the study, by electrophysiological methods, of the brain mechanisms that underly the very nature of man's thinking. As the five-year period is drawing to a close it becomes increasingly clear that this study should be maintained for centuries while man's knowledge of himself continues to expand.

Few perhaps realize that the Federal Government is making an annual grant for our scientific work. And I shall tell you the story, which has not been told, of how it was initiated. Seven years ago, post-war conditions were threatening us with a marked reduction in our laboratory research. Consequently, I approached the Federal Government for assistance. After preliminary applications, the Prime Minister, Mr. Mackenzie King, invited me to present our cause before him and a group of his ministers.

I asked them for permanent endowment of the scientific work in this Institute in an amount that would yield at least \$40,000.00 annually. The response was kindly but the idea of endowment was not accepted. Finally a grant in that amount was authorized for one year, a grant to an individual who happened to be the Director of this Institute.

This seemed wrong in principle, for the work of the Montreal Neurological Institute was needed by Canada then and for many years to come. The Director to whom the grant was made might be killed or he might resign, as I have always suspected he would, to follow strange new interests in other fields. He might even be turned out to pasture at any time!

When the first year's grant was finally made, believing that the need for permanency of work was greater than our need for increased volume of work, I returned to Ottawa and proposed to Mr. Howe, then Chairman of the Committee of the Privy Council on Scientific and Industrial Research, that we would reduce our proposed laboratory activity and accept the annual grants as successive contributions to our capital endowment for as long a time as those in the Cabinet might continue to smile upon the Montreal Neurological Institute.

The answer was blunt. We must spend the annual grant or lose it. So — we chose to spend the money, and turned our eyes toward the hope of private endowment. But I believed then, and I am convinced now, that the country's interest would have been better served if capital endowments could be made.

It is true that during the past seven years, annual re-applications have been filled out, and the grant has been renewed each year. After the third year it came to be called a "consolidated grant", and similar consolidated grants were made to other scientists in other Universities in varying amounts. Inspectors are now sent to us each year through the National Research Council, to pass judgment on the value of the work, bringing with them each year the threat of discontinuance. If the work of this Institute is worth supporting at all, it is in the country's interest to establish it on a firm and permanent footing, not to watch its performance with a view to ending its career should it fall temporarily from favor. Individuals, like political parties, must come and go, for better or worse, but sound scientific advance, like wise government, should be maintained in certain fields on a continuing and permanent basis.

The Montreal Neurological Institute has a great mission to perform in the analysis of the basic mechanisms of the mind of man and the treatment of derangements of the nervous system. It is capable of serving the people of Canada as long as there is a Parliament in Ottawa or in Quebec, and it should do so with independence and without the fear of the loss of political favor.

The advancement of learning in our Universities is just as much a legitimate concern of those who guide our National Government as national defence is. From Ottawa, they can evaluate the intellectual needs of the country from the point of view of national strategy. They are interested, I am sure, in the future of higher learning, and not in the political rewards and the political power of repeated giving. Let them, therefore, consider endowment as a form of assistance, in addition to short term grants for research.

Surely no province could object to university endowment. It adds strength and it leaves freedom for wholesome growth. Large scale capital endowments would not cost as much as other forms of military defence and, when once established, the importance of adequate university centres, even for the purpose of defence in time of a future war, would be difficult to overestimate.

The Provincial governments must support education and teaching. The Federal Government should interest itself in University research and teaching. To a large extent those fields of interest are complimentary. The statesmen who have this matter in hand in every province and at Ottawa as well, should consider the history of the operation of higher education and of research, as well as the immediate needs of the people whom they seek to serve so sincerely.

They must realize, from a consideration of the contrasting results of private benefaction to Universities on the one hand and yearly support by absolute foreign governments on the other, that freedom is the atmosphere in which intellectual leadership thrives and that a reasonable proportion of endowed income will inevitably bring out the best type of productive work in institutions of higher learning.

CLINICAL STAFF

Director

WILDER PENFIELD, O.M., 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 Neurologist COLIN RUSSEL, B.A., M.D., F.R.C.P.(C)

Neurologist Francis McNaughton, B.A., M.Sc., M.D., C.M.

Associate Neurologists DONALD LLOYD-SMITH, B.Sc., M.D., C.M., F.R.C.P. (C) 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) REUBEN RABINOVITCH, B.A., M.D., M.Sc. BERNARD GRAHAM, B.A., B.Sc., M.D., C.M. WILLIAM TATLOW, M.D., M.R.C.P. DONALD TOWER, A.B., M.Sc., 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 John Hanbery, A.B., M.D. WILLIAM FEINDEL, B.A., M.Sc., D.Phil., M.D., C.M.

> Roentgenologist Donald McRae, M.D.

Electroencephalographer Herbert Jasper, Ph.D., D.ès Sci. (Paris), M.D., C.M.

> Anaesthetist ANDRÉ PASQUET, B.A., M.D., C.M.

Associate Anaesthetist R. G. B. GILBERT, M.B., B.S., M.R.C.S., L.R.C.P., D.A., F.R.C.P.(C), F.A.C.A.

> Assistant Anaesthetist R. W. M. BETHUNE, M.D.

Neurochemist and Donner Fellow K. A. C. ELLIOTT, M.Sc., Ph.D., Sc.D.

Associate Neurochemist DONALD TOWER, A.B., M.D., Ph.D.

Associate Neuroanatomist JERZY OLSZEWSKI, Ph.D., M.D.

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., F.R.C.S. Harold Elliott, B.Sc., M.D., C.M. Jean Sirois, B.A., M.D.
Consulting Anaesthetists	 HAROLD R. GRIFFITH, M.M., B.A., M.D., C.M., F.A.C.A., F.I.C.A., F.F.A.R.C.S. (Eng.), F.R.C.P.(C). 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.C.S.
Consulting Pathologist	LYMAN DUFF, B.Sc., M.A., M.D., Ph.D. (Tor.), F.R.C.S.
Consulting Roentgenologist	CARLETON PIERCE, A.B., M.Sc., M.D., F.R.C.P.

TEACHING STAFF

Α.	Department o	f 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 Professor of Neurology	FRANCIS MCNAUGHTON
Associate Professor of Experimental Neurology	K. A. C. Elliott
Assistant Professors of Neurology	Preston Robb
, , , , ,	Arthur Young
Assistant Professors of Neurosurgery	HAROLD ELLIOTT
	Arthur Elvidge
Assistant Professor of Experimental Neurology	Donald Tower
Assistant Professor of Neurological Radiology	Donald McRae
Assistant Professor of Neuroanatomy	Jerzy Olszewski
Lecturers in Neurology	C. Miller Fisher
	Donald Lloyd-Smith
	W. F. T. Tatlow
Lecturers in Neurosurgery	William Feindel
	John Hanbery
Lecturer in Clinical Psychology	Brenda Milner
Demonstrators in Neurology	Bernard Graham
	D. E. Howell
	Reuben Rabinovitch
Demonstrators in Neurosurgery	Gilles Bertrand
	Joseph Stratford
Demonstrator in Neuropathology	Armando Ortiz
Demonstrator in Electroencephalography	Lewis Henderson
Demonstrator in Experimental Neurology	HANNA PAPPIUS



A. ROTHBALLER, P. GOFTON.

B. Department of Neurology an Graduate Studies and Resear	ed Neurosurgery, McGill University Faculty of rch.
Professors	William Cone
(Chairman)	
Associate Professors	Francis McNaughton K. A. C. Elliott
Assistant Professors	Arthur Elvidge Jerzy Olszewski

EXECUTIVE STAFF OF THE MONTREAL NEUROLOGICAL INSTITUTE

Director	Wilder Penfield
Assistant Director	Francis McNaughton
Assistant Director · Hospitalization	Preston Robb
Secretary-Registrar	
Business Manager	
Executive Secretary	

RESIDENT STAFF — July 1953 - July 1954

Senior Resident	Gilles Bertrand
Neurosurgical Residents	Gordon Dugger*
	Joseph Stratford*
Neurological Resident	
Neurological Service	
Assistant Residents	
	IRVING DISHER*, PIERRE GLOOR,
	Brian Hunt*, W. E. H. Mason**,
	J. Sidoo**, L. N. Gilliam**,
	P. Gofton**
Neurosurgical Service	
Senior Assistant Residents	Joseph Stratford*,
	FUAD HADDAD
Assistant Residents	John Roth, A. Martinez-Coll,
	F. McConnell*, John Mullan*,
	MARK RAYPORT*, ALAN ROTHBALLER*
Residents in Anaesthesia	D. GILLIES*, BRENDAN DALY*,
	N. B. Urie*, Robert Cole*
Residents in Neuroradiology	T. F. B. Phillips†, P. J. Fitzgerald†,
	WARREN WILKINST, GERALD CLAYDENT

*Six months on this service.

**On rotation from Royal Victoria Hospital for four months.

[†]Three months on this service.

FELLOWS OF THE MONTREAL NEUROLOGICAL INSTITUTE

1953-1954

Neuropathological Fellows	ARMANDO ORTIZ*, B.Sc., M.D. (Mexico) JOHN HUNTER*, B.S., M.B. (Sydney), M.Sc. (McGill)
Electroencephalographic Fellow	DAVID HUBEL, B.S., M.D., C.M. (McGill)
Neuroanatomical Fellows	BLAINE NASHOLD, A.B. (Ind.), M.Sc. (Ohio), M.Sc. (McGill), M.D. (Louisville) THEODORE HOFF, A.B., M.D. (Kansas), M.Sc. (McGill)
Duggan Assistant Neuropathological Fellows	MARK RAYPORT*, B.A. (Earlham), M.D., C.M. (McGill) LAURENCE LEVY*, M.B., B.S., (Lond.), M.R.C.S., L.R.C.P. (Eng.)
CHESTER CULLEN**, B.Sc. (Pittsburgh), M.Sc. (McGill), M.D. (Jefferson) MARGARET DILWORTH***, B.S., M.D. (Pennsylvania)	SHAFICA KARAGULLA ^{††} , B.A., M.D. (Beirut), M.R.C.P. (Edin.), L.M.S.S.A. (Lond.) L. M. M. LARRAMENDI ^{†††} , M.D. (Madrid) LAURENCE LEVY, M.B., B.S. (Lond.),
MURL FAULK, B.S. (U.M.I.), M.D. (Western Res.)	M.R.C.S., L.R.C.P. (Eng.) CHOH-LUH LI, B.A., M.D. (Shanghai),
JOHN HANBERY, A.B., M.D. (Stanford) RUDOLF MEYER-MICKELEIT ^{††} , M.D. (Freiburg)	Ph.D. (McGill) Irving Heller [†] , B.Sc., M.D., C.M. (McGill) Rudolf Hess, M.D. (Zurich)
JOHN MULLAN, M.B., B.Ch. (Belfast), F.R.C.S. (Eng.) HUGH MCLENNAN, B.Sc., Ph.D. (McGill)	DAVID HOWELL, M.R.C.S. (Eng.), M.B., B.S. (Lond.), M.R.C.S. (Lond.) PUBLIO SALLES SILVA, M.D. (Sao Paulo)
DAVID INGVAR, M.D. (Lund)	

*Six months in this position.

**National Foundation for Infantile Paralysis Fellowship.

***U.S. Public Health Fellowship.

†N.R.C. Fellowship.

††Borden Neurological Fellowship.

†††Rockefeller Fellowship.

NURSING STAFF

Director of Nursing	Miss Eileen Flanagan, B.A., R.N.
Assistant Directors of Nursing	Miss Bertha Cameron, R.N.
	MISS RUTH A. MACDONALD, B.N., R.N.
Instructor	Mrs. C. Tosh, B.N., R.N.
Supervisor Dressing Rooms	Miss A. Johnson, R.N.
Night Supervisor	Miss E. Barrowman, R.N.
Assistant Night Supervisors	MISS L. MCAULEY, R.N.
	Miss R. Brown, R.N.
Operating Room Supervisor	Miss M. Haggart, R.N.
Assistant Operating Room Supervisors	Miss P. Stanley, R.N.
	Miss R. Bacal, R.N.

HEAD NURSES

MISS M. CAVANAUGH MISS C. LAWRENCE MISS C. ROBERTSON MISS K. AINGER Miss J. Fraser Miss A. Cameron Miss I. MacMillan

APPOINTMENTS HELD IN TEACHING HOSPITALS OF MONTREAL BY MEMBERS OF STAFF

ROYAL VICTORIA HOSPITAL

Neurologist and Neurosurgeon-in-chief	Wilder Penfield
Honorary Neurologist	Colin Russel
Neurologist	Francis McNaughton
Neurosurgeon	William Cone
Associate Neurologists	Preston Robb
	Arthur Young
Associate Neurosurgeon	Arthur Elvidge
Electroencephalographer	
Assistant Neurologists	Donald Lloyd-Smith
Clinical Assistant in Neurology	
Assistants in Outdoor Clinics	William Feindel
	Bernard Graham
	DAVID A. HOWELL

MONTREAL GENERAL HOSPITAL

Neurosurgeon and Chairman	HAROLD ELLIOTT
Associate Neurologist	MILLER FISHER
Clinical Assistant in Neurology	BERNARD GRAHAM
Clinical Assistant in Neurology and	
Electroencephalographer	William Tatlow
Consulting Neurosurgeons	William Cone
	Arthur Elvidge
	Wilder Penfield
Consulting Neurologists	Herbert Jasper
	FRANCIS MCNAUGHTON
Honorary Attending Staff	Norman Viner



Third Row: MISSES PERRON, CORRIGAN, FLETCHER, JOHNSON, D. MACDONALD, LANGLOIS. Second Row: MISSES CAVANAUGH, A. CAMERON, TOSH, FLANAGAN, B. CAMERON, R. MACDONALD, I. MACMILLAN. Front Row: MISSES MORGAN, STORKLE, CROWELL, HAYDEN, BUCAL, J. MACMILLAN, O'CONNOR. Fourth Row: MISSES GRIFFITHS, WILLIAMS, MCAFEE, SCHOFIELD, ROUSELL, BEAMAN, ROBERTSON, AINGER. Back Row: MISSES JEFFRIES, O'HEIR, DICKSON, SIDDONS-GREY, HAMILTON, KLUYTMANS, ERB. Fifth Row: MISSES SMITH, ALLAN, LAWRENCE, L. FILLON, DENNING, HAGGART, JOLIE.

CHILDREN'S MEMORIAL HOSPITAL

Honorary Consultant	Colin Russei.
Consultants	William Cone
Consultants	Arthur Elvidge
	DONALD MCRAE
	Wilder Penfield
	Francis McNaughton
Director of the Department of Neurology	Arthur Young
Neurologist	Preston Robb

HÔTEL DIEU

Chief of Neurological ServiceJEAN SAUCIER

HÔPITAL NOTRE DAME

Neurologist-in-Chief	
In charge of Department of Neurosurgery	CLAUDE BERTRAND

REPORT OF THE NEUROLOGIST

DR. FRANCIS MCNAUGHTON

An annual reporter to this Meeting is asked each year to stand at a given moment in time, and to glance backward at the year which is past, and then to look steadily into the Future. It is a good discipline for each of us, though not always an easy task.

With the opening of the McConnell Wing has come a welcome increase in neurological beds, and a consequent increase in the number of patients. We now use some 40 beds in the Institute at any time, and can foresee the need to create two neurological services instead of one, as at present, if a high standard of clinical work is to be maintained. The volume of outpatient work continues at the same level as in previous years. One of our hidden activities and a most important one, is the constant task of consultation with other services of the Institute and the Royal Victoria services. During the past year, members of this department took part in over 400 such consultations.

I must thank publicly the men of the Resident and Visiting staffs who have done the work of the Department. The Neurological Resident, Dr. Druckman, deserves particular praise for his devoted teaching of the assistant residents. This has been one of the most valuable aspects of their training here.

There have been inevitable Staff changes during the past year. Dr. David Howell, a well-trained young neurologist from London joined us in September. He has done excellent work in the Epilepsy Clinic in collaboration with the Social Service Department and has helped greatly with Ward teaching. Dr. Roy Swank, who has carried on important laboratory and clinical research in Multiple Sclerosis in the Institute over the past 5 years, accepted a Professorship in Neurology at the University of Oregon at the end of 1953. We regret his departure, but we welcome as his successor in this field, Dr. J. B. R. Cosgrove, who has just come to us from the Department of Physiology and Medical Research at the University of Manitoba. We hope that his work in the Neurological Institute will bring new understanding of the problems surrounding Multiple Sclerosis.

We also welcome the fact that Dr. Preston Robb will now take a more active part in the work of the Neurological Department, and will add strength to our group.

With this Annual Meeting we enter a new phase in the history of the Institute. As I see it, Clinical Neurology must now accept a greater share of the burden of clinical work and research than it has been able to carry hitherto, and we must plan accordingly.

For the care of patients, we must enlarge our staff and improve our organization.

For the teaching of students and particularly that growing number of young men who come to us seeking post graduate training in Neurology, we must provide a better integrated course of training in the Ward and in our splendid laboratories than has been possible hitherto. For the promotion of Clinical and Laboratory Research we must provide the time and the opportunity for staff members to devote themselves more fully to this aspect of Neurology.

Neurology holds a key position in the complex molecular structure of organized medicine. It has close "chemical" bonds with Internal Medicine, with Psychiatry, and with Neurosurgery. Only if these bonds are strong will we have a stable organic compound.

REPORT OF THE NEUROSURGEON

Dr. William Cone

The department of Neurosurgery has completed a busy and trying year. The disruptions incident to the changes in the building and the new construction made the care and protection of patients difficult. It is hard to believe we admitted twelve hundred and forty-six patients to the service in 1953, forty more than in 1952. It is easy to explain why but eight hundred and forty-one operations were done, one hundred and four less than the preceding year. The alterations in the first, second and third theatres were major ones. It was not until late in December that we could work in the operating suite without handicap.

The house staff of 1953 deserves praise and our thanks for their devotion to the work and for the way they met the inconveniences. I would cite particularly Dr. Feindel, now a member of the attending neurosurgical staff, and Dr. Gordon Dugger and Dr. Gilles Bertrand of the resident staff.

To the nursing staff on the wards, to the nursing staff in the operating rooms, to the supervisors and to Miss Flanagan and Miss Cameron, we say, "Thank you." We recognize your part in the successes. Our respect for your skill, integrity and dignity equals that of the grateful patients you have supervised.

Patients admitted as emergencies continued to disorganize planned work, and patients in this category constitute a relatively large percentage of the admissions. It is easy to pick out the traumatic cases from the files. There were one hundred and ninety-two patients admitted after accidents. The figures give an idea of the frequency and influence of emergencies on our routine. One hundred and twenty-three of the eight hundred and forty-one operations were done within twenty-four hours after admission. This is fifteen percent of the total operations: seven percent were done within six hours of admission.

Such emergencies, of course, take precedence over the regular work. They upset the schedule of the anaesthetic department and the routine work of the X-ray department. We appreciate the remarkable and splendid cooperation of their departments in the management of these patients.

Near the end of the year most of the alterations in the old part of the building had been completed and the McConnell Wing was open. It soon became apparent how much more smoothly the neurosurgical department could function with its increased number of beds. Patients could be kept in for longer periods of study and treatment, without blocking others from being cared for. We all found the change to be a striking one. It was difficult in the absence of dangerous overcrowding and the sense of urgency and tension incident to the overcrowding to believe it was the same hospital. Some of the staff missed the excitement and pressure. Most of us were glad to settle in to a more normal routine. We were all grateful for the increased facilities and pleased that for the time being we could readily keep up with the demand and do better work.

What ancillary facilities do we have here now that make work easier and patients safer? First I will mention the operating rooms. They are all airconditioned. The air is filtered and washed and passed through a precipitron so that even the smallest pollens are removed. Any temperature from 60° to 100°F. can be maintained. The temperature can be raised or lowered about 10° in ten minutes. The humidity can be kept high. The room air is changed eight times an hour. This frequent exchange prevents the accumulation of explosive anaesthetic gases. The high humidity prevents insensible fluid loss through respiration and reduces static electricity which might cause an explosion. There are conducting floors and all switches at floor level are explosion proof. All other switches and the lights are at or above the level of five feet. The electro-cautery continues to be an explosion hazard and is used with the knowledge it is a weak link in our safety chain. Each operating room is equipped with ultra-violet lights so that not only can operations be carried out within a box of light, but the operation site and the instruments can be irradiated. Oxygen and nitrous oxide are piped into the rooms for use of the anaesthetists. Air drills are driven by compressed bone dry nitrogen. X-ray viewing boxes are built into the walls. Very strong suction, yet capable of fine adjustment, is led to the operating room from a central source. The operating room is a comfortable and safe place to be except for the ultraviolet lights. These are a hazard from which there is ready protection if glasses with shields are worn. There are no operating rooms I know of in which any more safety measures have been provided than in our own.

The recovery rooms can be considered as another ancillary facility. We have preferred to have our patients cared for in recovery rooms on the floor where the nurses have known them before their operation. The recovery rooms are equipped with oxygen outlets and suction outlets also. They can be humidified. In some there is air-conditioning.

The new dressing rooms are really miniature operating rooms with pipedin oxygen and suction. A focusing spotlight is suspended from the ceiling. An X-ray viewing box is built into the wall. The dressing rooms can be used for minor surgical procedures, too.

The two special dressing rooms where patients with infections can be treated without hazard to others are also completely equipped. Miss Cameron has worked out a routine for the ordinary and special dressing rooms that time has proven to be safe, simple and practical.

There are rooms on each floor where lumbar punctures, intravenous infusions, interviews and examinations can be done, thus freeing the dressing rooms. The work of the day is completed much more expeditiously now.

Two rooms, one on the second floor and one on the third floor, have been set aside as conference rooms for medical undergraduates. The rooms are large enough so that demonstration to small groups can be satisfactorily carried out. They are also used by students working up neurological or neurosurgical cases. The improved physical setup has made it possible to increase the interest of the medical students in neurological subjects. We can look forward to real help and stimulus now the students can take an active part in our work. It is a joy to work on Second East where Peter Pan and the children hold sway. Here we suggest alterations. It would be more satisfactory if the cubicles at the west end of the ward were removed so that all the patients in the ward can share in its activities.

There will be more patients to be treated and more who have very serious illnesses and disabilities. It is with the seriously, almost hopelessly ill patient we are especially concerned. Increasing surgical skills and judgement, and increasing understanding of physiological principles make it possible to "treat them well enough now to keep them from dying, but all too often not well enough to make life worth living." It is to neurophysiology and neurochemistry we turn for more and better understanding of basic principles. Then we will be able, not only to keep the patients from dying, but with the help of medical neurology and social service, make life really worth living.

REPORT OF THE REGISTRAR

DR. DONALD LLOYD-SMITH

The past year marked the culmination of many years planning and effort with the opening of the new McConnell Wing and the Second Foundation of the Montreal Neurological Institute. The opening ceremonies including the foundation exercises and scientific sessions were attended by a large number of former fellows and outstanding neurologists and neurosurgeons from England and the United States and Canada.

The opening of the new wing in the latter months of 1953 increasing our capacity to 140 beds has made it possible for us to record already the largest number of patients ever admitted, in any one year. It is expected that the succeeding years will show a much greater increase.

The work of the Department may be considered under three headings: clinical, research, and teaching including post-graduate and graduate courses.

Clinical work includes the ward service, Outpatient Clinics and consultations on other services.

During 1953, a record number of 1,962 patients were admitted, representing an increase of 5% as compared to the previous year. The total number of patient days reached 31,876 with the average duration of admission being reduced slightly to 16.3 days. Surgical operations reached a total of 836. The death rate remained low at 4.2%, with an autopsy rate of 90.3%. The close relationship with the Royal Victoria Hospital was maintained with neurological consultations being held on 435 patients in 1953. Our neurosurgeons also saw numerous patients in consultation.

A heavy demand has continued to be made on the X-ray department and electroencephalography department. The Department of Radiology made 7,410 X-ray examinations, the largest figure yet recorded. The Department of Electroencephalography again investigated a large number of patients with 2,031 electroencephalograms and 57 electromyographic examinations being made. The Outpatient clinics in Neurology and Neurosurgery continued to carry heavy loads. Special clinics were held for clinical research work and physiotherapy in multiple sclerosis. The neurology treatment clinic continued active in studying new methods of treatment. The Neurology Clinics admitted 424 new patients and there were in addition 3,167 re-visits. The Neurosurgery Clinics had 209 new patients and 718 re-visits, making a total for both clinics of 4,528 patient appointments. The Neurology Treatment Clinics made a total of 170 appointments.

The second aspect of the work of the Institute includes the research program, which was continued in 1953 with the work of thirty-eight Research Fellows. Their studies included problems in the field of multiple sclerosis and epilepsy, as well as fundamental problems of neurophysiology, neurochemistry, neuropathology and neuroanatomy.

Teaching is the third aspect of the work of the Institute. This includes many categories of students and the program continued to be very crowded. Regular courses of didactic lectures, clinical demonstrations and bedside teaching were given to medical undergraduates in neurology and neurosurgery. Special seminars and post-graduate courses were arranged for internes and research fellows in neuroanatomy, neurophysiology, neurochemistry and neuropathology. Lectures were held for the undergraduate nurses of the Royal Victoria Hospital and a special course in neurological nursing was provided for graduate nurses.

Much of the work in the past has been hampered by crowding and lack of adequate facilities. However, with increased accommodation and improved facilities now provided we anticipate that future reports will be able to record further achievements.

REPORT OF THE ASSISTANT DIRECTOR (Hospitalization) Dr. Preston Robb

The opening of the McConnell Wing in the Fall of 1953 was a period of great rejoicing. For the first time in many years we could see hope of handling the patients that arrived on our doorstep without dangerously overcrowding the wards, as well as providing the best in diagnosis and treatment. At the same time new problems confront us.

Although the new wing was only open a few months in 1953, a record number of 1,962 patients were admitted, representing an increase of 5% over the previous year. The total number of patient days reached 31,876, with the average length of stay being reduced to 16.3 days, the lowest in the history of the Institute. This is indicative of increased efficiency in our handling of patients, and at the same time, represents more work for the staff. Surgical operations reached a total of 841. The death rate remained low at 4.2%, with an autopsy rate of 90.3%.

The neurology and neurosurgical clinics continue to carry a heavy load, with a total of 4,528 new and old patients.

These are only some of the cold facts which Dr. Lloyd-Smith has outlined so well in his detailed report. On the whole they present a picture of increased activity, and yet all this took place during a period of building, when everything was disrupted. The old annex was gone, the bridge connecting us to the Royal Victoria was cut off, blasting and dust descended. Truly the nurses and all need to be congratulated for the skill in carrying on, and the patients commended for the good will with which they put up with so many inconveniences.

At last year's annual meeting Mr. Bain reported that the average cost per patient per day had reached an all time high of \$20.73. This cost has continued to rise, and in 1953 it was \$21.84, an increase of \$1.11 per day. Financially, it was a very difficult year. As well as not having the annex, additional loss was sustained due to the break-through at the north end, so that it was not until late in the year that the complete area was ready for occupancy. Wages continued to rise, as did the cost of supplies. 58% of patients were public patients. 12% of all patients were Q.P.C.A. The patient suffering from a neurological or neurosurgical condition has the same size pocket book as patients in any other hospital, but frequently, due to the nature of his illness, it is already depleted.

It must be kept in mind that the care of the patient comes first. The reputation of this Institute depends not only on the excellent quality of research which emanates from its laboratories, but also on the investigation and care of patients. Dr. Cone in charge of neurosurgery, and Dr. McNaughton in charge of neurology, have provided leadership in this field. This is as we want it, and as it should be, but such leadership, as all pioneering and research, is expensive.

Mr. Principal, Dr. Penfield has pointed out many times that this Institute is a cooperative venture. We are dependent on many people for success — the Principal of the University, Dr. Turner of the Royal Victoria Hospital, down to the most humble members of the staff, who are given that extra something which makes the difference. To all we are grateful.

REPORT OF THE DIRECTOR OF NURSING

Miss Eileen C. Flanagan

The report of the Nursing Department for the year 1953-4 is submitted with pleasure.

We have now had six months experience in our new wards, and it is a great relief to the nursing staff to have the space and equipment to care for the patients. They did an excellent job both in the physical and psychological aspects of nursing in keeping the patients comparatively happy and well nursed during the period of acute congestion.

The smooth transfer and operation of the new wards, Dressing Rooms and Operating Rooms was due in a large measure to Miss Cameron, Miss Barrowman and Miss Haggart who carried out the details and organization of the actual moving.

Two classes of Post-Graduates, twenty-five students in all, were given six months training and experience, while sixty-four undergraduates from the Royal Victoria Hospital were given six weeks experience each. A great amount of this teaching is done by the Ward Supervisors and Head Nurses. I would like to state here that the Nursing Department is in need of a reasonable endowment fund to finance the important work of teaching and training nurses for neurological and neurosurgical nursing, in order that we can maintain a well qualified staff. The Graduates' Society has had a successful year, having had eight meetings with three speakers and several social and money making events. They are sending four children from our clinic service to camp, and are sending a delegate to the Biennial Meeting of the Canadian Nurses Association in Banff.

Last year I reported that we were carrying out a study on the wards to determine the amount and quality of nursing required by our patients. The findings indicate that we require a minimum of 4.7 hours per adult patient per 24 hours. From January to May of this year we have averaged 4.6 hours. This includes the time of the graduates, undergraduates and nursing aides. We have yet no figures on the children's ward, where the requirements are much higher. A study of the report is being made to find ways and means to ensure that we are using our staff as efficiently and economically as possible.

As always we are indebted to the medical staff for all their help and guidance on the wards and in the classroom, while the nursing staff in return does its utmost to ensure that the excellent medical care of the patients in the Institute is ably complemented by their nursing care.

DEPARTMENT OF SOCIAL SERVICE

Director: MISS JOYCE BEATTY Social Workers: MRS. M. GARMAISE MISS T. HIDAKA MISS K. MACDONALD MRS. G. PHILLS

In reviewing the past year's activity of the Social Service Department I find there are no remarkable developments to report. We have, however, made some progress in our main objective of trying to provide as good service as possible to patients and their families. We have reorganized the department so that now, rather than having all workers carry cases on all services, the workers are each assigned to specific services. One worker, therefore, carries all Dr. Cone's ward and clinic cases requiring social service, another is responsible for referrals from Dr. Elvidge's and Dr. Penfield's service, and still another for Neurology. This provides a much better opportunity for the social worker to cooperate more closely with the doctors in trying to help the patient with the problems illness creates or intensifies.

One of our main objectives this year has been to renew a close relationship with the Schools of Social Work and I am pleased to report that both McGill and the University of Montreal decided to place social work students in our department for their field work experience. We have enjoyed having these students and look forward to continuing cooperation with both schools.

I would like at this point to say just a word about another aspect of our work which concerns me greatly, and that is in connection with research. I think social workers are becoming increasingly aware of the importance of research, the need to review with some scientific method, groups of cases so that we can work out better means of helping the individual patient. We are very grateful to the Dominion Provincial Grant for the Study of the Social Problems of Epilepsy for making it possible for us to undertake research in this field. We are now in the process of studying the employment problems of the men between the ages of 20 and 40 attending our seizure clinic and hope to arrive at some conclusions that will aid us in planning the best ways of trying to do something about employment problems. There are also two student research projects underway. The possibilities for interesting and valuable research are unending. Our great problem is finding time for research when patient's individual problems are so pressing. Our first concern must be the patient's welfare. We have endeavoured to give a high calibre of service to patients but we realize that much remains to be done.

We are very grateful to various individuals and groups who have given funds to be used in direct aid to individuals. I would particularly like to thank the Cancer Aid League for their generous contribution of money to be used at our discretion in aiding tumour patients.

So far as activities within the Institute are concerned, we have once again participated in the teaching program for the post-graduate nurses. For four periods of one week each we have had nurses in our department and have planned programs that we thought would give them greater understanding of the function of a social service department and some opportunity to discuss the meaning of illness to patients and their families. We have enjoyed these sessions and hope that they have proved helpful to the nurses.

In reviewing the past year's activity of the Social Service Department I feel that some progress has been made in our main objectives of providing as good service as possible to patients, of participating actively in community welfare activities, and of assuming increasing responsibility in research projects. I am only too well aware of how much remains to be done.

DEPARTMENT OF ANAESTHESIA

DR. A. F. PASQUET

DR. R. G. B. GILBERT

In the report for this past year, the members of the department of anaesthesia wish to record, primarily, their appreciation for their new and most modern offices, laboratory, and all the facilities made available by the opening of the new McConnell Wing.

The period of transition from the old to the new presented many difficulties which unfortunately were reflected in a slight decrease in work from the previous year.

General Anaesthetics	560
Spinal & Regional Anaesthetics	172
Total	732

In September Dr. John Davies, assistant anaesthetist, left for Winnipeg. He has been replaced by Dr. Robert Bethune.

The teaching activities of the department have now received recognition. Notification has been received from the Royal College that the Department of Anaesthesia of the Montreal Neurological Institute was approved for the Post Graduate teaching of anaesthesia. Members of our department have assumed a more active role in the organization and administration of the Department of Anaesthesia at the Veteran's Hospital and at the Royal Edward Laurentian Hospital. The primary reason for this is to widen our field of teaching. Furthermore this move has enabled us to maintain a larger staff.

During the period concerned in this report, four residents from the Diploma Course of Anaesthesia, of McGill University, have studied in the department. They were Drs. David Power, Alexis Weilhorski, Deirdre Gillies and Norman Urie.

With the expanded space and facilities, and with the kind cooperation of other departments, we are looking forward to a marked increase in both the clinical and investigative activities of this department.

DEPARTMENT OF RADIOLOGY

DR. DONALD MCRAE

In 1953, 7,410 radiological examinations were carried out. Included in this number were 541 encephalograms, 174 ventriculograms, 124 cerebral arteriograms and 391 myelograms. This figure of 7,410 is the second highest figure in our history. It was exceeded in 1950, the last year in which the old Military Annex was open. With the new beds and the increased radiological facilities of the McConnell Wing, we will undoubtedly do much more work in the future.

During the year, Doctors Stevenson, Phillips and Hale of the Royal Victoria and Montreal General Hospitals spent periods of four months in the study of Neuro-radiology in the department as did Dr. G. Sarin, Colombo Fellow from India. Dr. S. Traub was appointed Research Fellow in Neuro-radiology and is making a special study of the skull changes in meningeal fibroblastomata.

Neuro-radiological case presentations were carried out weekly in collaboration with the Department of Neurosurgery, and twice weekly with the Department of Neurology. The Neuro-radiological seminar was given in the Spring of 1953. It has been transferred to the Autumn so that the Research Fellows and Resident Staff will be better able to understand the x-ray case presentations which begin in September each year.

The Department of Radiology moved from its old location to the new wing in September and October. Now we have four radiographic rooms and a large wet film viewing room, so that rapid examination of the patient, and immediate wet film interpretation and reporting are possible. The new Craniograph has made cerebral arteriography easier and better. The 180° tilt table has made myelography in the paraplegic or quadriplegic patient easy. The large Staff Viewing Room makes it possible for three groups of people to view films independently at the same time. The x-ray film museum will allow us to have 1,200 films permanently displayed, an invaluable teaching aid. All of the x-ray films made here since the Institute opened in 1934 have been centralized in the department and we have enough filing space to last until approximately 1960. This film collection is probably unique. We hope to have extracted the meat from the fat before the time comes to discard it. The separate Isotope Laboratory and Isotope Counting Room allow for independent or concurrent chemical, biological and clinical work with radio-active isotopes.

DEPARTMENT OF NEUROCHEMISTRY

Dr. K. A. C. Elliott Dr. Hanna Pappius

Though the Neurochemistry laboratory has stayed in the old part of the building, it has been freed by the New Wing of encroachment on its space by Experimental Neuro-chemistry and more efficient arrangements of equipment has become possible. Space is also now available for clinical chemical research projects that members of the staff would like to undertake.

The continuous increase in the work of the laboratories has been as marked as ever. The total number of procedures carried out in 1953 was 12,411 compared to 11,493 for the previous year. This increase was all accounted for by the increase of work in the ward laboratories where 6,668 procedures were carried out compared with 5,561 in 1952. These figures do not include the taking of 2,278 blood samples for analyses here and in other laboratories. The preparation of the operating room solution, "Elliott's A", was continued with 4,008 litres being provided. After considerable negotiation, experimentation, and a visit by Dr. Elliott to Baxter Laboratories in the United States, the Canadian branch of this firm undertook to apply their special facilities to the preparation of the "Artificial Spinal Fluid" in ready-to-use form. This solution is now being purchased from Baxter Laboratories.

In spite of the increase in the load, the efficiency and diligence of Miss Kathleen Ramsay, senior technician, and Miss Joan Baker have made it unnecessary to increase the technical staff this year. The technical supervision of the procedures and regular testing of accuracy has been carried out by Dr. Hanna Pappius. Dr. Irving Heller has checked over all reports from the clinical point of view. Dr. Heller has also made an extensive study of the possible clinical information which could be gained by phosphate determinations on spinal fluid.

DONNER LABORATORY OF EXPERIMENTAL NEUROCHEMISTRY

Dr. K. A. C. Elliott Dr. Hanna Pappius

It was with great satisfaction that this department moved into its new quarters in the McConnell Wing last August. The increased space was quickly filled with equipment which had been waiting in storage and new fellows in the department have filled it with lively activity.

Dr. Donald Tower was recalled by the U.S. Navy and left early in the academic year to work at the National Institute of Neurological Diseases and Blindness.

Dr. Irving Heller joined the department as fellow in Neurochemistry and National Cancer Institute of Canada Fellow and is making a comparative study of the metabolism and cellularity of normal brain and brain tumours. The desoxyribonucleic acid (DNA) content of the nuclei of normal tissues is constant and a measure of the number of nuclei in the tissue. Dr. Heller has found abnormally high DNA per nucleus in brain tumours. His results are providing valuable information concerning the metabolic activity per cell of different kinds of normal neurons and glial cells and malignant cells.

Dr. Hugh McLennan has returned from two years at University College, London, and is applying isotopes to the study of electrolyte movements in mammalian muscle. He is also working with Dr. Larramendi and Dr. Jasper on micro-electrical recording from perfused brain.

Dr. Ernst Florey, has recently come from Austria and Germany to carry on chemical studies on substances he has discovered which produce inhibitory and excitatory effects on nervous activities.

Mr. Elliot Brodkin has carried on his studies on factors affecting acetylcholine synthesis and is engaged in a re-examination of earlier work from the department on factors affecting the production of bound acetylcholine.

Miss Jean Cross has made interesting observations on the effects of deprivation of oxygen and glucose on the subsequent metabolism of brain tissue.

Dr. Pappius completed a study of the enzymes, shown to be two, which split phosphate from adenosine triphosphate (ATP) in brain and the cations which activate them. The activity of these enzymes was found to be correlated with the metabolic activity in different species and to be active enough to use up all the ATP which could be produced in metabolism. A study of focal epileptogenic tissue in relation to the ATP splitting enzymes, potassium and sodium content, and oxygen uptake in a new medium, was also completed.

In a study of electrolyte movements in brain, Dr. Pappius has shown that, in the absence of oxygen, the potassium content rapidly becomes the same as the surrounding fluid but, on re-establishing good metabolism, potassium is reconcentrated in the tissue.

It is hoped that these latter studies, simulataneous observations and further experiments on intense swelling to which brain tissue is subject, the studies by Miss Cross, and certain earlier studies of factors affecting brain metabolism, will eventually give a unified picture of events occurring during brain damage due to local cerebral trauma or anaemia. Nearly all of the studies in this department are also facets of a programme designed to throw light on normal and abnormal, particularly epileptic, brain activity.

DEPARTMENT OF ELECTROENCEPHALOGRAPHY

DR. HERBERT H. JASPER

There have been 1,795 patients examined in these laboratories during the past year, with 236 re-examinations, making a total of 2,031 examinations. This represents a slight decrease in the total number of examinations carried out, as compared to the previous year, though with fewer re-examinations the total number of patients handled has shown a definite increase (9 per cent). This indicated a tendency to more complete and longer examinations on each patient, which makes fewer re-examinations necessary. Re-examinations have decreased 40 per cent. This represents a great saving in time and money and greater efficiency in laboratory operations.

We were unable to begin operation of our third E.E.G. examining room until after the first of the year. With this additional examining room, principally for out-patients, our work has been greatly facilitated, and the crowding together of in-patients and out-patients can be largely avoided.

Mr. Henderson and Miss Prisko continue to train many E.E.G. technicians during the year, and we have had more Fellows in training than we could conveniently accommodate. This provides us with a stimulating atmosphere and keeps us closely in touch with colleagues in many parts of North and South America.

The diagnostic groups referred for E.E.G. examination during the past year were as follows:

Epilepsy	1,025
Tumours	176
Head Injuries	164
Headaches	82
Encephalitis	47
Thrombosis	39
Hemorrhage	20
Multiple Sclerosis	13
Aneurysm	10
Syncope	10
Sub-dural hematoma	13
Abscess	6
Anxiety	3
Deferred	164
Miscellaneous	259
Total	2,031

DEPARTMENT OF NEUROPHYSIOLOGY

DR. HERBERT H. JASPER

The work of this department has been greatly facilitated during the past year by improved facilities and increased laboratory space. We have also enlarged and greatly improved animal quarters. This has made it easier for Mr. Stephen to continue the excellent care he has been giving our experimental animals.

Experimental surgical procedures of a major character numbered 328 during the past year, with an additional 170 minor operations. Miss Mary Roach and Mrs. Beatrice Kung Van continue their smooth management of preparations for these many procedures, even with the added problem of having active laboratories on both 7th and 8th floors, often with 3 or 4 operations going on simultaneously.

The principal problems under investigation have been mentioned in the report on graduate studies and research. During the coming year, with the completion of remodeled and new electronic equipment in many of our laboratories, with the aid of the Federal Provincial Grant, our laboratories should be even more productive than they have been in the past.

DEPARTMENT OF NEUROANATOMY AND NEUROLOGICAL PATHOLOGY

DR. FRANCIS MCNAUGHTON DR. JERZY OLSZEWSKI

In the late summer of 1953 the Department was moved to its new quarters on the 6th Floor of the J. W. McConnell Wing. The space available for the Department was greatly increased. Two rooms for histological techniques, a large teaching laboratory, several rooms for fellows and a Museum provide ample space for routine and research work.

Undergraduate and postgraduate teaching was conducted along the same lines as in previous years. The undergraduate course in Neuroanatomy and Neurophysiology was given in collaboration with Drs. Jasper and Burns. The postgraduate seminar in Neuroanatomy and Neurophysiology for Fellows of the Institute and selected postgraduate students of the Departments of Physiology and Psychology was held during the winter and spring months.

The routine histological work covered the preparation of histological sections from the material of the Department of Neurophysiology, and from the routine neuropathological autopsy material.

Dr. B. Nashold worked on the problem of diffuse thalamocortical connections, using the retrograde degeneration technique. Dr. T. Hoff studied the problem of allergic experimental encephalitis. The results of both projects were presented in the form of M.Sc. theses.

Dr. Olszewski obtained a two year grant from the Multiple Sclerosis Society of Canada to conduct research on some aspects of allergic encephalitis.

A special grant from the Department of Health of the Province of Quebec was again given to Dr. Olszewski for Epidemiological research. Mr. W. Palmer and Mr. J. Maguire of McGill University held studentships under this grant.

DEPARTMENT OF NEUROSURGICAL PATHOLOGY DR. WILLIAM CONE

During the past year three hundred and ninety-six specimens, fifty-nine autopsies and forty specimens classified under the heading of "miscellaneous pathology" were studied in the laboratory.

Beginning July 1, 1953, Dr. John Hanbery became Assistant Neuropathologist. Dr. Armando Ortiz took over as Senior Fellow in Neurosurgical Pathology and Dr. Mark Rayport as Junior Fellow. Unfortunately, due to illness, Dr. Ortiz had to drop out. We are glad to have him back now. Dr. Rayport did double duty until January 1, 1954, when Dr. John Hunter began as Senior Fellow and Dr. Laurence Levy as Junior Fellow.

We thank Dean Lyman Duff, Director of the McGill Pathological Institute, and his associates, Dr. Sean Moore and Dr. Igor Klatzo, for their cooperation. To Mr. R. L. Duckett and Dr. A. B. Clement, Coroner and Deputy Coroner respectively, and Dr. R. Fontaine and Dr. J. N. Roussel, medico-legal examiners, we are also grateful. They have permitted us to attend examinations on patients who have been studied at the Institute, but who because of medico-legal problems were Coroner's Court cases. Eighteen of the post mortem reports were on autopsies done at the Coroner's Court. Professor Theodore Waugh and his Fellows gave freely of their time and experience to help with diagnosis on particularly difficult surgical specimens, and we thank them too.

A grant from the Cancer Research Society made it possible for transplantation of tumors of the brain from human beings to monkeys to be continued. The results so far have been disappointing, but the attempt will be continued.

PHOTOGRAPHY

Dr. Jerzy Olszewski

During the summer the Department moved to new quarters on the sixth floor of the McConnell Wing. Space allowed for the Departments has been greatly increased. The three darkrooms and a finishing room are all airconditioned, making the work much more efficient. Adequate storage space and rooms for special procedures eliminated the extra equipment from the studio.

The main work of the Department has been carried on along the same lines as in previous years.

New techniques such as infrared photography and moving pictures of operations have been tried. A moving picture library of clinical cases is now being organized with the help of Dr. Feindel.

Mr. Hodge, who is now a Councillor of the Professional Photographers' Association of the Province of Quebec, exhibited at the Annual Salon of the Association and was awarded a Certificate of Distinction in the Scientific Class.

FELLOWS' LIBRARY

DR. FRANCIS MCNAUGHTON

With the reorganization of the Institute building, Dr. Penfield's former office now becomes part of the Library, and gives us much-needed space. This will be used as a reading room; current journals and special reference books will be placed on the shelves in this room. The original Library room will keep its present arrangement, and a microfilm reader will be placed there.

Through the courtesy of the EEG Journal, the Library now receives an increasing number of neurological journals from other countries. 57 new books have been added during the year.

We are grateful for books and Journals donated during the past year by Prof. C. Bykov, Dr. Elizabeth Crosby, Dr. David Ingvar, Dr. J. Olszewski, Dr. Wilder Penfield and Dr. Roy Swank.

THE FELLOWS' SOCIETY

DR. I. H. HELLER, President DR. A. ORTIZ, Vice-President DR. D. HUBEL, Secretary

Now that the Institute has increased considerably in size, frequent personal contact among the research and clinical staff has become more difficult. In this respect the Fellows' Society has been an important force in bringing together the workers in all departments at social and scientific meetings. Largely through the co-operation of the Montreal Neurological Society, many distinguished visitors to the Institute were invited to speak at informal Fellows' Society meetings in the sixth floor conference room.

The Reford Room was established on the sixth floor of the new wing where Fellows may gather for afternoon tea or for the refreshments which follow the evening meetings. The ninth floor kitchen and piano room remain available for lunches and evening use.

Two dinners were held this year, one to introduce new Fellows and another for those who were leaving. Two pleasant social evenings were arranged with the M.N.I. Women's Club.

The speakers for the year were: Dr. J. Chandy, Vellore, India; Dr. G. W. Harris, London, Eng.; Dr. E. Crosby, Chicago, Ill.; Dr. G. Gammon, Philadelphia, Penn.; Prof. D. Russell, London, Eng.; Dr. E. A. Carmichael, London, Eng.; Dr. J. Cosgrove, Winnipeg, Man.; Dr. R. Sperry, Chicago, Ill.; Dr. W. Nauta, Washington, D.C.; Dr. W. Haymaker, Washington, D.C.; Dr. R. L. de No, New York, N.Y.; Dr. J. N. Walton, Boston, Mass.; Dr. W. K. Livingston, Portland, O.; Dr. G. Petrie, Montreal.

MONTREAL NEUROLOGICAL SOCIETY

1953-1954

Chairman	Dr.	Wm. V. Cone
Vice-Chairman	DR.	D. LLOYD-SMITH
Secretary-Treasurer	DR.	Wm. Feindel

Twenty-two meetings of the Section of Neurology of the Montreal Medico-Chirurgical Society were held weekly from October 7th to April 14th. The membership totalled 85 of which 29 were members and 56 were associate members.

In addition to bi-monthly clinical meetings held at Notre Dame Hospital, Hôtel Dieu, the Montreal General Hospital and the Montreal Neurological Institute, there were meetings at the Montreal Neurological Institute at which addresses by distinguished visitors and local colleagues were presented. Two outstanding meetings were held. One was addressed by Dr. James L. Poppen from the Lahey Clinic, Boston, at a joint meeting of the Neurology Section and the main Medico-Chirurgical Society. The Society was also honoured by a visit from Sir Russell Brain, President of the Royal College of Physicians, who gave an address on Encephalitis and Encephalopathy in Childhood. Other papers read before the Society were as follows:

DR. WM. V. CONE, Montreal Neurological Institute, "Fat Embolism."

- DR. GEORGE D. GAMMON, University of Pennsylvania, "Some Observations on the Attempt to Relate Specific Metabolic Disturbances to Alterations in Neural Function."
- DR. ELIZABETH CROSBY, Dept. of Anatomy, University of Michigan, "Discussion of the Phylogenetic History, the Anatomic Connections and the Functional Significance of the Primate Superior Colliculi."
- DR. ARNOLD CARMICHAEL, Queens Square, London, England, "Hemiplegia of Early Onset and Results of Hemispherectomy."
- DR. ROGER SPERRY, Dept. of Anatomy, University of Chicago, "Some Regulative Factors in the Developmental Organization of Cutaneous Sensibility."
- DR. SYDNEY SUNDERLAND, University of Melbourne, Australia, "The Applied Anatomy of Peripheral Nerves."
- DR. WALLE J. H. NAUTA, Walter Reed Army Medical Center, Washington, D.C., "Anatomical Connections of the Hippocampus and Septal Region."
- DR. WEBB HAYMAKER, Armed Forces Institute of Pathology, Washington, D.C., "The Virus Encephalitides Characterized by the Presence of Inclusion Bodies."
- DR. R. LORENTE DE NO, Rockefeller Institute of Medical Research, "Problems of Organization of the Central Nervous System."

- PROFESSOR H. S. BURR, Section of Neuroanatomy, Yale University School of Medicine, "The Organization of the Nervous System. An Adventure in the Method of Science."
- DR. JOHN N. WALTON, Massachusetts General Hospital & Harvard Medical School, Boston, Mass., "The Prognosis of Subarachnoid Hemorrhage."
- DR. J. W. HANBERY & DR. M. RAYPORT, Montreal Neurological Institute, "Unilateral Exophthalmos due to Cholesterol Granuloma of the Orbit."
- DR. A. D. ROTHBALLER and DR. G. S. DUGGER, Montreal Neurological Institute, "Hypothalamic Tumour — A Clinico-pathological Study of Disordered Water Balance, Endocrine and Neurosecretory Function."
- PROF. TH. ALAJOUANINE, Paris, France, "Some Aspects of Verbal Expression in Aphasia."

Officers elected for next year are:

Chairman, DR. CLAUDE BERTRAND

Vice-Chairman, DR. K. A. C. ELLIOTT

Secretary Treasurer, DR. WILLIAM FEINDEL

GRADUATE STUDIES AND RESEARCH Dr. Herbert H. Jasper

Notable achievement in graduate studies and research has been made during the past year, in spite of preoccupation by many of our staff with completion of the new buildings, and renovation and reorganization of laboratories, not to mention major responsibilities for two international congresses and several important scientific meetings.

An outstanding event has been the publication of the long-awaited book: EPILEPSY AND THE FUNCTIONAL ANATOMY OF THE HUMAN BRAIN, in which is summarized long years of fruitful collaboration by PENFIELD and JASPER and the many colleagues and patients who have contributed largely to this work.

Two other important books have been completed by members of our staff: THE CYTO-ARCHITECTURE OF THE HUMAN BRAIN STEM, by Dr. Olszewski and Dr. Baxter, and NEUROCHEMISTRY: THE CHEMICAL DYNAMICS OF BRAIN AND NERVE, edited by Dr. Elliott, Dr. Irvine Page and Dr. Quastel.

In the laboratories of surgical neuropathology, under the direction of Professor Cone, a particularly active research program has been carried out with 7 graduate fellows: Drs. HANBERY, DUGGER, ROTHBALLER, STRAT-FORD, ROTH, RAYPORT, and HADDAD. These included studies of antibiotics and their effects on the nervous system and a review of the treatment of purulent meningitis. Several clinico-pathological studies of brain tumors were completed and a study of the mechanism of fat embolism was carried out with Dr. SWANK before he left for the Far West. The regular neuropathological conferences conducted on Friday afternoons throughout the year continue to form an important part of our teaching program as well as to provide many enlightening observations of scientific value.

In neuroanatomy and medical neuropathology, Drs. McNaughton and Olszewski have continued their active undergraduate and graduate teaching program, in addition to conducting research with four graduate fellows: Drs. NASHOLD, HOFF, SILVA, and MULLAN. Of special interest are the detailed studies of the anatomy of the thalamus and brain stem with special reference to the diffuse or unspecific thalamo-cortical projection system. This forms a part of combined neurophysiological and anatomical studies of structural and functional relationships between the cerebral cortex and brain stem which have been shown to be of great importance to our understanding of the integrative action of the brain as a whole. Experimental neuropathological studies have been started in this department with investigations of allergic encephalitis. This is probably a sign of much more of this type of work to come.

The Donner laboratory of experimental neurochemistry, under the direction of Dr. Elliott, has become well established in its new quarters. The enlarged space has been rapidly filled with active investigators, seven in all, engaged in intensive research into the basic chemical mechanisms underlying the life and activity of brain and nerve tissue. Dr. Pappius, in addition to providing strong support in all the work of this laboratory, is conducting research on electrolyte and water movements in relation to brain metabolism. Dr. Heller, constantly alert to clinical applications, is making good progress in his studies of the nuclei and metabolism of brain tumors. We welcome the return of Dr. McLennan from a year in London. He has begun some isotope studies on electrolyte shifts in muscle which he hopes may some day be applied to neuromuscular diseases in man. He has also started in vivo experiments on the chemical mechanisms underlying epileptic discharge in the cortex, working with Dr. Larramendi.

Further studies of acetylcholine and the effects of anoxia and aglycemia on brain metabolism are progressing well with Elliot Brodkin and Miss Jean Cross. We welcome the recent arrival of Dr. Ernst Florey of Austria, who is to continue his studies of chemical substances which produce excitatory or inhibitory effects upon nerve activity.

Neurophysiological research has progressed along two main lines: continued studies of the pathways and functional relationships between the cerebral cortex and centrencephalic neuronal systems which seem to activate and to integrate brain function as a whole, and microelectrode studies of the fine structure of the cerebral cortex with records of the discharge of single cortical cells. Participating in this research, in addition to myself, playing a minor role, were 13 colleagues and research fellows: Drs. Ajmone-Marsan, Li, Hanbery, Ingvar, Dillworth-Scott, Hunter, Cullen, Feindel, Gloor, Courtois, Hess, Sharpless, and Larramendi. Space does not permit a summary of all this work.

The microelectrode studies with Dr. Li have been most illuminating. It has been found that there is a veritable beehive of activity going on in the depths of the cortex, which is not detected by the usual methods of recording with the electroencephalogram from the surface. The waves of electrical activity from the surface may facilitate the discharge of nerve cells, but they may also arrest or inhibit. Gradually the true pattern of cortical activity is being revealed; it is organized in depth, and under the constant influence of to and fro currents from sub-cortical structures, the delicate balance of controlled function being lost in the explosive chain reaction of the epileptic discharge.

There are many investigations being carried out and much research being done which refuse to be forced into departmental divisions. One of these is the temporal lobe project of Professor Penfield and his co-workers: Drs. Feindel, Milner, Karagulla and others. The far-reaching significance of this work for our understanding of brain mechanisms underlying memory and the higher mental processes is familiar to us all.

Important clinical investigations are under way in the X-Ray and E.E.G. laboratories, in the clinical laboratories of neurochemistry and neuropathology, and in the daily work on the wards. The rarefied research of the experimental laboratories is thus kept in constant touch with human problems. We hope that this may still be the most distinguishing feature of our new greater Institute.

Our total research team during the past year was about 36 strong. But strength in science lies not in numbers. We now have adequate laboratory space and facilities with reasonably ample research funds for which we are most grateful. Only time will tell whether the scientific contributions of the enlarged Institute will equal or surpass those of the first edition. I may assure you, Mr. Principal, that the research staff feel a profound sense of responsibility while tooling up to start the second chapter in the work of this Institute.

CLINICAL APPOINTMENTS AND FELLOWSHIPS*

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

*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 Director's office, and provide names of reference. 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.

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.

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, M.N.I. 3 hours weekly (6 months)

- 1. Lectures, demonstrations, and discussions, correlated with Course B, Seminar in Neurophysiology. Mondays, 5 p.m., beginning in November.
- 2. Advanced Neuroanatomy for selected group; brain modelling; 2 laboratory periods weekly beginning in December, times to be arranged.

Professor McNaughton Professor Olszewski

*B. SEMINAR IN NEUROPHYSIOLOGY, M.N.I. 2 hours weekly (6 months) Lectures, demonstrations and discussions, correlated with Course A, Seminar in Neuroanatomy. Mondays, 8 p.m., beginning in November.

Professor Jasper

C. COLLOQUIUM IN CLINICAL NEUROLOGY. 1 hour weekly. Clinics and lectures, Wednesdays, 5 p.m., M.N.I.

Staff and Visiting Lecturers

D. SEIZURE MECHANISMS AND CEREBRAL LOCALIZATION; Neurosurgical, Electroencephalographic, and Roentgenographic Conference. M.N.I. 2 hours weekly (9 months)

> Professor Penfield Professor Jasper Professor McRae

*E. SEMINAR IN NEUROPATHOLOGY. Gross and microscopic demonstration to be supplemented by collateral work. 1 hour weekly (10 months), Fridays, 5 p.m.

> Professor Cone Professor Penfield

- *F. OUTLINE OF NEUROCHEMISTRY. 1 hour weekly (11 weeks). Lectures and demonstrations, M.N.I. Mondays, 5 p.m., beginning in September.
 - G. CLINICO-PATHOLOGICAL CONFERENCES -- NEUROLOGY. 1 hour weekly (5 months). Time to be arranged.

Professor Olszewski

H. COLLOQUIUM IN NEUROLOGICAL ROENTGENOLOGY. 1 hour weekly, (9 months), Mondays, 9 a.m.

Professor McRae

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

DONATIONS

To HARVEY CUSHING CLINICAL RELIEF FUND:		
Mrs. Esther Bloom Mrs. Fanny Schulman	\$	100.00 5.00
Miss Suzanne Cohen		250.00
Mrs. Mary Dey		30.00
Dr. A. L. MacFarlane		100.00
Mr. A. G. Massabke		100.00
To the Hobart Anderdon Springle Memorial Fund:		
Mrs. H. A. Springle		1,250.00
To McNaughton Neuroanatomy Research Fund:		
Estate of Miss Carrie Mulock		500.00
To Neuromuscalar Research Fund:		
Muscular Dystrophy Association of Montreal		600.00
To Furnishings and Equipment Fund:		
Quebec North Shore Paper Company		1.000.00
Anonymous	3	6,000.00
To Cone Research Fund:		
Mr. and Mrs. Joseph Aron		50.00
Mrs. I. C. R. Atkin		200.00
Mr. Milton Felson		50.00
Mrs. Anne Goldsmith		25.00
Mr. Gordon Gowling		100.00
Mr. A. S. Kezar		50.00
Mr. Marcus Meed		50.00
Mr. Louis Price		25.00
Mr. 5. Keitman Mr. Joseph Schumer		1 000 00
Mrs. Mollie Schumer		200.00
Mr. H. Siegal		25.00
Mrs Pauline Siegal		10.00
Mr. Joseph Silver		100.00
Mr. S. Smoeller		10.00
Mrs. J. C. Watson		1,000.00
Dr. David Weintraub		200.00
Mr. S. Yaffe		50.00

PUBLICATIONS

1953-54

CHESTER CULLEN:

Intravascular Aggregation and Adhesiveness of the Blood Elements Associated with Alimentary Lipemia of Large Molecular Substances. Circulation; 9:335-346, 1954 (with R. L. Swank).

ANATOLE DEKABAN:

- Human Thalamus. An Anatomical, Developmental and Pathological Study. I. Division of the Human Adult Thalamus into Nuclei by Use of the Cyto-Myelo-Architectonic Method. J. Comp. Neurol. 99: 639-683, 1953.
- Human Thalamus. An Anatomical, Developmental and Pathological Study. II. Development of the Human Thalamic Nuclei. J. Comp. Neurol. 100: 63-97, 1954.

K. A. C. Elliott:

- Biochemical Actions of Toxic Substances on the Nervous System. A. Research Nerv. & Ment. Dis., Proc. (1952) 32: 422-431, 1953.
- Binding of Acetylcholine. Am. J. Physiol. 173: 437-442, 1953 (with Elliott Brodkin).

ARTHUR ELVIDGE:

Synostosis Cranii. Acta neurochir. 3: 187-208, 1953 (with Choh-luh Li).

WILLIAM FEINDEL:

Note on the Nerve Endings in a Subject with Arthropathy and Congenital Absence of Pain. J. Bone & Joint Surg. 35B: 402-407, 1953.

JOHN HANBERY:

- Present Concepts in the Treatment of Purulent Meningitis. Neurology, 4: 301-316, 1954.
- Independence of Diffuse Thalamo-Cortical Projection System Shown by Specific Nuclear Destructions. J. Neurophysiol. 16: 252-271, 1953 (with Herbert Jasper).
- Intrathecal Injection and Cortical Application of Chloramphenicol An Experimental Study with a Review of the Local Action of Antibiotics on the Central Nervous System. J. Neuropath. & Exper. Neurol. 13: 297-317, 1954 (with C. Ajmone-Marsan).
- Pathways of Non-Specific Thalamo-Cortical Projection System. EEG Clin. Neurophysiol. 6: 103-118, 1954 (with Cosimo Ajmone-Marsan and Margaret Dilworth).

HERBERT JASPER:

A Practical Method for Uniform Activation with Intravenous Metrazol. EEG Clin. Neurophysiol. 5: 443-444, 1953 (with Guy Courtois).

See Choh-luh Li, joint author.

See John Hanbery, joint author.

See Wilder Penfield, joint author.

CHOH-LUH LI:

Microelectrode Studies of the Electrical Activity of the Cerebral Cortex in the Cat. J. Physiol. 121: 117-140, 1953 (with Herbert Jasper).

See Arthur Elvidge, joint author.

FRANCIS MCNAUGHTON:

Observations on Diagnosis and Medical Treatment. Chapter XIV in Epilepsy and the Functional Anatomy of the Human Brain, by Wilder Penfield and Herbert Jasper, Boston, Little, Brown pp. 540-566, 1954.

DONALD MCRAE:

Bony Abnormalities in the Region of the Foramen Magnum: Correlation of the Anatomical and Neurological Findings. Acta radiol. 40: 335-354, 1953. Occipitalization of the Atlas. Am. J. Roentgenol. 70: 23-45, 1953 (with A. S. Barnum).

JERZY OLSZEWSKI:

Cytoarchitecture of the Human Brain Stem. Basel and New York, S. Karger, 1954 (with Donald Baxter).

ANDRÉ PASQUET:

Combined Regional and General Anesthesia for Craniotomy and Cortical Exploration. Part II. Anaesthetic Considerations. Current Res. in Anesth. & Analg. 33: 156-164, 1954.

WILDER PENFIELD:

Temporal Lobe Epilepsy. Brit. J. Surg. 41: 1-7, 1954.

- Surgery and Science. Bull. Nova Scotia Med. Assoc. December 1953.
- Some Observations on Amnesia. Am. J. Psychiat. 110: 834, 1954.
- Mechanisms of Voluntary Movement. Brain, 77: 1-17, 1954.
- Combined Regional and General Anesthesia for Craniotomy and Cortical Exploration. Part I. Neurosurgical Considerations. Current Res. in Anesth. & Analg. 33: 145-164, 1954.
- Epilepsy and the Functional Anatomy of the Human Brain. Boston, Little, Brown, 1954, 896. pp. (with Herbert Jasper).

JOSEPH STRATFORD:

Cortico-Thalamic Connections from Gyrus Proreus and First and Second Sensory Areas of the Cat. J. Comp. Neurol. 100: 1-14, 1954.

ROY SWANK:

- Relationship of Native Heparin to Clearing of an Alimentary Lipemia. Proc. Soc. Exper. Biol. & Med. 82: 553-556, 1953 (with S. W. Levy).
- The Effects of In Vivo Heparin on Plasma Esterase Activity and Lipemia Clearing. J. Physiol. 123: 301-314, 1954 (with S. W. Levy).
- Hemolysis and Alimentary Lipemia. Effects of Incubation, Heparin, and Protamine. Blood, 9: 348-361, 1954 (with Esther Roth).

See Chester Cullen, joint author.

J. M. VAN BUREN:

A Case of Subacute Inclusion Encephalitis Studied by the Metallic Methods. J. Neuropath. & Exper. Neurol. 13: 230-247, 1954

CLASSIFICATION OF DISEASES

Nervous System Generally:

Neurosyphilis	10
Multiple sclerosis	71
Motor neurone disease	20
Myasthenia gravis	4
Choreoathetosis	3
Miscellaneous	39

Meninges:

Meningocoele and myelomeningocoele	30
Acute purulent meningitis	11
Tuberculous meningitis	8
Headaches	31
Subdural haematoma	15
Subdural hygroma	6
Epidural haematoma	4
Miscellaneous	24

Brain:

Congenital anomalies	3
Hydrocephalus	29
Brain abscess	3
Cerebral concussion	70
Cerebral contusion, laceration, traumatic encephalopathy	55
Migraine	18
Epilepsy	267
Cerebral thrombosis and encephalopathy due to atherosclerosis	62
Cerebral haemorrhage	12
Cerebral embolism	2
Intracranial aneurysm	27
Miscellaneous	52

Tumours:

Glioma	6
Perineural fibroblastoma	1
Meningeal fibroblastoma	1
Pituitary adenoma	
Craniopharyngioma	
Haemangioma	2
Colloid cyst, 3rd ventricle	
Unclassified	2
Secondary tumour, brain and spinal cord	2
Miscellaneous tumours, body generally	1

Spinal Cord:

Compression of the spinal cord	6
Acute myelitis	2
Vascular lesions	2
Acute anterior poliomyelitis	8
Guillain-Barré syndrome	4
Myelopathy, undetermined origin	13
Syringomyelia	12
Miscellaneous	/

Cranial and Peripheral Nerves:

Optic neuritis	4
Trigeminal neuralgia	52
Bell's palsy	3
Menière's syndrome	6
Cervical rib syndrome	3
Traumatic peripheral nerve lesions	10
Other neuralgias	10
Peripheral neuropathy	12
Miscellaneous	13

Mental Diseases:

Mental deficiency	8
Schizophrenia	3
Presenile dementia (Alzheimer's?)	3
Depression	6
Drug Addiction	2
Psychoneurosis	62

Other Systems:

Occipitalization of atlas	3
Platybasia	1
Congenital anomalies of spine	6
Congenital anomalies of skull	5
Herniation of intervertebral disc (cervical)	32
Herniation of intervertebral disc (thoracic)	3
Herniation of intervertebral disc (lumbar)	222
Fracture and/or dislocation of the vertebral column	46
Spondylolisthesis	6
Fracture of the skull	104
Essential hypertension	10
Intractable pain	3
Traumatic lesions of soft tissues	11
Muscular dystrophy	4
Infections	7
Miscellaneous	123
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CLASSIFICATION OF OPERATIONS

Craniotomy	
Hemispherectomy	4
Pedunculotomy	
and biopsy	ר י
and decompression	4
and drainage of abcess	4
and drainage of subdural hematoma	2.3
and drainage of intracerebral hematoma	3
and drainage of extradural hematoma	1
and excision of focal area of brain	12
and excision of aneurysm	1
and exploration	8
and hypophysectomy	2
and incision and drainage of cyst	2
and obliteration of aneurysm	6
and removal of adhesions	4
and removal of tumour	1 70
and rhizotomy	/8
and sinusectomy	13
and lobectomy	10
Trepanations	0
and biopsy	7
and drainage of subdural space	2
and placement of electrodes	1
and subdural insufflation	3
and ventriculography	14
Elevation of depressed skull fracture	36
Plastic repair of skull defect, tantalum	2
Plastic repair of skull defect, bone	7
Suture of lacerated wound of scalp	5
Ventriculocisternostomy (1 orkildsen s)	2
L'aminectomy er hemileminectomy	1
and anterolateral chordotomy	12
and decompression of spinal cord	6
and exploration	9
and incision and drainage intramedullary cyst	2
and abcess	3
and ligation arterial varix	1
and removal of adhesions	2
and removal of tumour	10
and rhizotomy	5
and spinal fusion with bone graft	16
and spinal fusion with #18 wire	15
Discoldectomy	105
lumbar	123
cervical accimital fusion	10
Supradiantragmatic ganglioneurectomy unilateral	1
Supradiaphragmatic ganglioneurectomy bilateral	1
Sympathetic ganglioneurectomy	ī
Plastic repair of cranium bifidum	7
Plastic repair of spina bifida	22
Incision of scalp and application of tongs	1
Ligation of artery	2
Neurectomy	4
Removal of neuroma	1
Nerve suture	3
Re-opening of wound with evacuation	5
Xe-opening of wound with exploration	2

Re-opening of wound with removal of bone flap	2
Re-opening of tantalum plate	2
Re-opening of wound and repacking	26
Re-opening of wound with drainage of infection	1
Re-suturing of wound	1
Miscellaneous	39
Plaster cast	42
Ventriculo peritoneal shunt	36
Cerebral arteriography	
neck dissection	7
percutaneous	96
Injection of trigeminal nerve	4
Diagnostic spinal	4
Nerve blocks	23
TOTAL	836

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ITEMS OF INTEREST

The big event of the year was the Second Foundation Exercises and opening of the new McConnell Wing. As well as many other distinguished guests, former Fellows and wives who flocked back to attend the exercises and social gatherings were: George and Nancy Austin, Allan Bailey, Maitland Baldwin, Donald Baxter, William Caveness, Anatole Dekaban, Joseph Evans, Alister and Ruth Finlayson, William and Barbara Gibson, Gerald Haines, Molly Harrower, Thomas Hoen, E. F. Hurteau, John Hunter, W. C. Kite, Kristian and Brit Kristiansen, Robert Knighton, Revis Lewis, Sean and Ann Murphy, Arthur and Barbara Morris, Theodore and Catherine Rasmussen, Mary Robb-Peszcynski, Harold Rosen, Dorothy Russell, John Scott, Murton Shaver, Bertram Silverstone, Bernard Smith, Gordon and Pat Thomas, Donald and Arlene Tower, and Peter Westhaysen.

Activities included scientific papers which are to be published in the Second Foundation Volume and social activities for all. The formal dinner in the Faculty Club given by the Board of Governors of McGill University and the Barn Dance held in the Examination Hall of the Medical Building were outstanding events and will be long remembered by all. We are grateful to Mrs. John Kershman for the lovely dinner she provided for the ladies.

Dr. Colin Russel continues to enjoy ward rounds, the Society meetings and other functions about the Institute.

The annual Hughlings Jackson Lecture was given by Prof. Alajouanine of Paris. His address was entitled "On Some Aspects of Verbal Expression in Aphasia." He also spoke at the annual dinner of the Montreal Neurological Society recounting legendary tales of medicine in the vicinity of Marseilles.

In December 1953, Dr. Penfield gave the Menas Gregory Lecture at the New York University — Bellevue Medical Center College of Medicine on "Some Observations on Amnesia." As well, Dr. Penfield has had honorary degrees conferred on him by Oxford University, the University of Wales, the University of Toronto, and Yale University. In July 1953, he gave the Hunterian Lecture of the Royal College of Surgeons in London. He spoke on Temporal Lobe Epilepsy.

Early in the year an unusual honour was bestowed on Dr. Penfield when he was elected member of the Atheneum, an exclusive London Club which was founded in 1824.

Dr. Francis McNaughton was elected as a member of Council of the American Neurological Association and President of the Canadian Neurological Society.

Dr. Roy Swank is settled again with his family in a beautiful home in Portland, Oregon. It is already a favorite stopping place for all.

Dr. Gordon Dugger is now practising Neurosurgery at the University of North Carolina.

Dr. Miller Fisher has moved to Boston where he continues his neuropathology research at Harvard in collaboration with Dr. Raymond Adams. Dr. Ladislav Antonik is now practising in Kapuskasing, Ont.

Dr. Cosimo Marsan has joined other old fellows at the National Institute for Nervous Diseases and Blindness in Washington. The other fellows include Dr. Maitland Baldwin, Dr. Milton Shy, Dr. Donald Tower, and Dr. John Lord.

Dr. John Hanbery and family left for San Francisco in June where he will be practising.

Dr. Igor Klatzo was awarded the Allan Blair Fellowship and will be studying in Mexico, New York, Toronto, and London.

In October 1953 Dr. Penfield gave the John Stewart Memorial Lecture in Halifax before the Nova Scotia Medical Society: "Surgery and Science". At the same time he received an honorary degree of Doctor of Laws from Dalhousie University.

With the formation of a Women's Auxiliary for the M.N.I., the Women's Social Auxiliary (Fellows' Wives) decided to change its name to the M.N.I. Women's Club.

The Fellows of the Institute have become so numerous it is hard to keep up with everybody. In February Dr. Kenneth Paine sailed with his Canadian bride, formerly Miss Netha Merritts, R.N., nurse at the Institute. Since the last Annual Report, Dr. David Hubel married Miss Ruth Izzard, and Dr. Gilles Bertrand married Miss Louise Lafleur.