6th Report
1940-41

To

DR. F. CYRIL JAMES,

PRINCIPAL AND VICE-CHANCELLOR,

MCGILL UNIVERSITY.

Sir:

On behalf of the Executive Committee I have the honour to submit the sixth annual report of the Montreal Neurological Institute. It includes a summary of the clinical work for the calendar year of 1940, together with the scientific and research record for the academic year of 1940-1941, and the lists of professional staff at the close of the academic year.

Respectfully submitted,

J. NORMAN PETERSEN, M.D.

Secretary.

Executive Committee of the Montreal Neurological Institute: Wilder Penfield, Chairman, Fred H. Mackay, Arthur Elvidge, Arthur Young, Donald McEachern, T. C. Erickson, John Kershman, Norman Petersen.

EXECUTIVE AND CLINICAL STAFFS

Director
WILDER PENFIELD, Litt.B., M.A., M.D., B.Sc., D.Sc., F.R.C.S. (C.), F.R.S.C.

Secretary and Registrar
J. NORMAN PETERSEN, B.Sc., M.D., C.M.

Executive Assistant
JOHN KERSHMAN, B.Sc., M.D., C.M., M.Sc.

Neurologist and Neurosurgeon
WILDER PENFIELD

Neurologist
*COLIN RUSSEL, B.A., M.D., C.M., F.R.C.P. (C.)

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

Associate Neurologists
(1)DONALD MCEACHERN, M.D.
J. NORMAN PETERSEN, B.Sc., M.D., C.M.
ARTHUR W. YOUNG, M.D., C.M., F.R.C.P. (C.)

Honorary Neurologist
A. G. MORPHY, B.A., M.D.

Associate Consulting Neurologists
ROMA AMYOT, B.A., M.D. (Paris)
ANTONIO BARBEAU, M.D., Ph.D.
EMILE LEGRAND, M.D., Médecin Légiste (Paris)
JEAN SAUCIER, B.A., M.D., (Paris) M.D., (Montreal)
NORMAN VINER, B.A., M.D., C.M.

Clinical Assistants in Neurology
JOHN KERSHMAN, B.Sc., M.D., C.M., M.Sc.
(2)FRANCIS L. MCNAUGHTON, B.A., M.D., C.M.

Associate Neuropsychiatrist
MIGUEL PRADOS, M.D.

Clinical Assistant in Neuropsychiatry
KARL STERN, M.D.

Associate Clinical Psychologist
MOLLY HARROWER-ERICKSON, Acad. Dip. (London), Ph.D.

Assistant Clinical Psychologist
MATILDA STEINER, M.A.

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

Associate Neurosurgeons
(3)ARTHUR ELVIDGE, M.Sc., M.D., C.M., Ph.D., F.R.C.S. (C.)
THEODORE C. ERICKSON, M.A., B.S., M.Sc., M.B., M.D., Ph.D.

Clinical Assistant in Neurosurgery
ROBERT H. PUDENZ, B.S., M.D.

Inset: R. L. SWANK

Inset: D. MCEACHERN

Fourth Row: F. L. MCNAUGHTON, K. STERN, T. E. W. HARDING, R. H. PUDENZ, M. PRADOS, T. B. RASMUSSEN

Third Row: A. BARBEAU, E. HURTEAU, A. CIPRIANI, W. H. BRIDGERS, J. KERSHMAN, T. C. ERICKSON

Second Row: M. R. HARROWER-ERICKSON, J. N. PETERSEN, A. W. YOUNG, W. G. PENFIELD, A. R. ELVIDGE, J. SAUCIER, D. WARDROP.

First Row: A. E. MAKO, D. ROSS, G. ODOM, P. LEHMANN, W. FIELDS

Roentgenologist

*ARTHUR CHILDE, M.D.

Acting Roentgenologist

T. E. W. HARDING, M.D., C.M.

Consulting Roentgenologist

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

Clinical Electrographer

HERBERT JASPER, Ph.D. (Iowa), D. es Sci. (Paris)

Clinical Assistants in Electrography

JOHN KERSHMAN, B.Sc., M.D., C.M., M.Sc.
ANDRÉ CIPRIANI, B.Sc., M.D., C.M.

Anaesthetist

DOROTHEA M. WARDROP, M.D.

Consulting Anaesthetist

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

Resident

GUY ODOM, M.D. (Tulane)

Internes

Senior: P. LEHMANN (replacing P. Hewitt)
Neurosurgical: A. E. MAKO (replacing T. B. Rasmussen)
W. FIELDS (replacing F. Turner)
Neurological: W. D. ROSS (replacing T. B. Rasmussen)

Social Service Supervisor

MILDRED A. LANTHIER

Fellows of the Montreal Neurological Institute

Senior Fellow: ROBERT H. PUDENZ, B.S., M.D. (Duke)
W. H. BRIDGERS, B.S., M.D. (Duke)
†ROY L. SWANK, B.S., M.D., Ph.D. (Northwestern)
M. R. SHAVER, B.A., M.D. (Queen's)
T. B. RASMUSSEN, B.S., B.M., M.S., M.D. (Minnesota)
†A. E. MAKO, M.D. (Western Reserve)
PETER LEHMANN, M.D. (Manitoba)

* Active Military Service.
(1) Acting Neurologist.
(2) Assistant Secretary.
(3) Acting Neurosurgeon.
† Commonwealth Fellow.

NURSING STAFF

Supervisor	MISS EILEEN C. FLANAGAN, B.A., R.N.
Assistant and ward teacher	MISS BERTHA CAMERON, R.N.
Night supervisor	MISS D. MAY COLLINS, R.N
Night assistant	MISS ESTHER BRADLEY, R.N.
Operating room supervisor	MISS CORA MACLEOD, R.N.
Assistant operating room	MISS RITA EDWARDS, R.N.
Assistant operating room	MISS VIVIAN POWERS, R.N.
Head nurses	MISS MARGUERITE CRAIG, R.N.
	MISS CONSTANCE LAMBERTUS, R.N.
	MISS ADELAIDE HAGGART, M.A., R.N.
General duty operating room	MISS FLORAD STRIKE, R.N.
General duty wards	MISS LEOLA ROBICHAUD, R.N.
	MISS LOIS GLASS, R.N
	MISS LILIANE POTVIN, R.N.

Miss Ruth Gouinlock, R.N.
Miss Margaret Thibodeau, R.N.
Miss Marion Barrowman, R.N.
Miss Jeanette Charron, R.N.
Miss Mary Cavanaugh, R.N.
Miss Marjorie Hyson, R.N.
Miss Beryl Collins, R.N.
Miss Linda Cantero, R.N.
Mrs. Ethel Merchant, R.N.

TECHNICIANS AND LABORATORY ASSISTANTS

Miss Doris D. Brophy, B.A., Licenciée ès Science	*Chemistry*
Miss Lorraine Code, B.A., M.T.	*Chemistry*
Miss Isabel Dickson, R.N.	*Neurophysiology*
Mr. H. S. Hayden, F.R.P.S.	*Photography*
Mrs. L. Lafortune	*Neuropathology*
Miss M. E. MacDonald, R.N.	*Electrophysiology*
Mr. G. Peladeau	*Neurophysiology*
Mr. F. Putt	*Neuropathology*
Mr. W. Whitehouse	*Roentgenology*
Mrs. J. Whitelaw	*Neuroanatomy*

SECRETARIAL STAFF

Miss A. Dawson	*Departmental Secretary*
Miss B. Burrows	*Electrophysiology*
Miss E. Fanning	*Half time, Manuscripts*
Miss I. Meagher	*Roentgenology*
Miss E. C. Montgomery	*Administration*
Miss M. Morris	*Neuropathology*
Miss M. O'Mara	*Records*
Miss P. Sheehan	*Office*

Appointments held in General Hospitals of Montreal by Members of the Staff of the Montreal Neurological Institute.

ROYAL VICTORIA HOSPITAL

DEPARTMENT OF NEUROLOGY AND NEUROSURGERY

Neurologist and Neurosurgeon-in-Chief	Wilder Penfield
Neuropsychiatrist	*Colin Russel
Neurosurgeon	*William Cone
Associate Neurologists	Jonh Kershman
	[1]Donald McEachern
	Francis McNaughton
	J. Norman Petersen
	Miguel Prados
	[2]Arthur W. Young
Honorary Attending Neurologist	A. G. Morphy
Associate Neurosurgeons	[3]Arthur Elvidge
	T. C. Erickson
Clinical Assistant in Neurosurgery	Robert Pudenz
Associate Clinical Psychologist	Molly Harrower-Erickson

Neurological Out-Patient Externe	W. H. BRIDGERS
Voluntary Assistant, Out-Patient Department	KARL STERN

* Active Military Service.
(1) Acting Neuropsychiatrist.
(2) Acting Psychiatrist-in-Charge (Dept. of Medicine).
(3) Acting Neurosurgeon.

MONTREAL GENERAL HOSPITAL

DEPARTMENT OF NEUROLOGY

Neurologist	FRED H. MACKAY
Associates	ARTHUR R. ELVIDGE
	NORMAN VINER
Assistant	FRANCIS MCNAUGHTON
Consulting Neurosurgeons	WILLIAM V. CONE
	WILDER PENFIELD

HÔPITAL NOTRE DAME

DEPARTMENT OF NEUROLOGY

Assistant Neurologists	ROMA AMYOT
	JEAN SAUCIER

HÔTEL DIEU

Consultant Neurologist	EMILE LEGRAND
Neurologist-in-Charge	ANTONIO BARBEAU

CHILDREN'S MEMORIAL HOSPITAL

Consultants	FRED H. MACKAY
	WILDER PENFIELD
	COLIN K. RUSSEL
Neuropsychiatrist	ARTHUR W. YOUNG
Assistant Neuropsychiatrist	FRANCIS MCNAUGHTON
Neurosurgeon	WILLIAM V. CONE
Neurosurgeon pro tem	ARTHUR R. ELVIDGE

ST. MARY'S HOSPITAL

Physicians in Neurology	NORMAN PETERSEN
	ARTHUR W. YOUNG
Consultant in Neurosurgery	ARTHUR R. ELVIDGE

JEWISH GENERAL HOSPITAL

DEPARTMENT OF NEUROPSYCHIATRY

Chief of Service	NORMAN VINER
Associate	JOHN KERSHMAN
Consultant	WILDER PENFIELD

WOMAN'S GENERAL HOSPITAL

Neurologist	JOHN KERSHMAN
Consulting Neurosurgeon	WM. V. CONE

ADDRESS OF THE DIRECTOR

Read at the Annual Meeting of the Staff, May 5, 1941.

NEUROLOGICAL RESEARCH IN 1941.

In this present time of struggle there should be carried out a reexamination of activity within every organization in the British Empire, even an institute which was dedicated to so peaceful a purpose as "the relief of sickness and pain and the study of Neurology".

What I am about to say may seem to be an unusual accompaniment of the annual report. So it is, but these are unusual times. Most of you have heard it said that Dr. Cone will return here and that I will replace him. When and if that happens are questions which I can not myself answer or decide. I shall speak of the future, not of the past, and shall try to lay before you some of the medical problems that we may attack at this time and during the coming year.

Loyalty in this staff has never been questioned. We all play different roles, and many of us have other responsibilities. We may have been forgetful, but never disloyal. I ask you now to eliminate with me those activities of this Institute which we may call temporarily non-essential, so that we may turn our energies toward the problems, some of which I shall outline.

Against the efficiency of a deadly military machine is opposed the resources and initiative of free peoples. The balance is critical. It is not enough that some of us should go overseas. This Institute should be dedicated here to the service of our cause. We must therefore restrict our activities to essential ones, judged by a new standard. We must take the initiative in regard to the problems which lie in our own field. Isolation from the war presents us with a challenging opportunity, if we have the wit to appreciate the problems and have the will to work. It is quite possible that we may accomplish little, may well receive no credit, but we can at least try.

The gaps left in our ranks by those gone overseas have been closed until such time as we can welcome them back. If others of us go, these new gaps will be closed again, and the work of the Institute will go on. I feel sure that, with added effort on the part of this staff, the same level of efficiency will be maintained in the care of the sick and the teaching of medical students, whatever changes occur.

In regard to research, some of it should now be considered secret, as it may aid the enemy. The results of such work may not be published, but if of value may be communicated through the Canadian Research Council to the British Research Council. Other research which might also conceivably help the beleagured people of England is best published in whole or in part.

There are certain problems which we should be qualified to study:

1. Relief of *fatigue* in bomber pilots and other combatants. This is being studied in other clinics, but it is, in part at least, a biochemical problem with neurological aspects.

2. *Seasickness* is a disability accepted by the navy as a necessary evil. It is, however, an important cause of disability, especially among the raw recruits who are placed aboard the small vessels now being used in increasing numbers, as pointed out by Sir Frederick Banting. The role of the vestibular system, the movement of heavy abdominal organs, and certain psychological elements; all these should be studied with a view to possible preventative treatment. I am suggesting to you the production of seasickness by apparatus constructed in the laboratory with man as the unhappy subject.

3. *Peptic ulcer* must be studied from the point of view of neurogenic cause. We have had a considerable experience of proven neurogenic ulceration of the gastrointestinal tract. These cases should be collected and reported. Prevention by means of drugs which influence the vagus or sympathetic nerves must be considered. Psychological study might also be made of individuals who develop peptic ulcer with a view to eliminating recruits of this type from our forces or of removing susceptible individuals from stress.

4. *Psychoneurosis* is a condition to be attacked here from the point of view of prevention. This may be accomplished by eliminating from the Canadian forces at the start men endowed with a personality which marks them as potential psychoneurotics. Dr. Harrower and her associates have made psychological studies of psychoneurotic patients, and are now in process of applying this work to the selection of recruits by group, as well as individual, tests. This work, begun with the hope of assisting Canadian recruiting, must be pushed rapidly, in the hope of providing the American military authorities with a means of discriminative selection in the enormous programme of enlistment which is now projected in the United States.

5. *Blackout* is the name applied to the unconsciousness that develops when an aviator alters his course by diving or banking with a rapidity that exceeds physiological tolerance. The aeroplane has now reached a capacity for performance beyond the tolerance of the pilot. Here is a vital medical problem. It has been studied from the point of view of the peripheral circulation. There is much to be done in the study of the brain and corebrospinal fluid system, and this lies directly within our proper field. An initial clinical study of this problem has been made by Dr. Rasmussen and Dr. Pudenz, but a considerable elaboration is required.

6. *Wounds* of the nervous system call for further study from the point of view of prevention of infection by means of sulphonamides, a problem which has recently received attention in England from Dr. Cone and Dr. Botterell, as well as Dr. Dorothy Russel, and by Dr. Hurteau here.

7. *Meningocerebral* wounds need further study from the point of view of prevention of posttraumatic epilepsy. An absorbable membrane is required to prevent adhesions. When found, it could be used in abdominal, thoracic, and peripheral nerve operations, as well as in cranial surgery. Dr. Odom and Dr. Pudenz have continued the studies of Dr. Chao and Dr. Humphreys, but the goal is not yet reached.

8. Clinical study of the elements of prevention of *posttraumatic headache* is needed. Our records are adequate for such a study. Only a beginning has been made by Dr. Elvidge and Dr. Lehman.

9. *Brain oedema,* a condition which kills many after head injury and some after arterial thrombosis or surgical operation, is produced by an as yet unsolved mechanism. Advance in treatment must wait upon fundamental study.

10. The question as to whether the electroencephalograph could be used as a yardstick for measuring the length of time for bed-rest after head injury might well be further investigated, with a view to shortening the inactivity imposed upon soldiers in some cases, and lengthening or altering treatment in others.

I have mentioned only certain problems which may reasonably be attacked by the staff of this Institute with our available facilities. Other problems may well suggest themselves.

Although this is not the time to undertake exhaustive research which has no practical application to military medicine, nevertheless, there are certain therapeutic problems to which greater attention on the part of our clinical staff should be drawn during the coming year:

1. The question of justification of treatment by surgical means (frontal lobotomy) of psychotic patients of certain types.

2. Better standardization of the principles of treatment of herniation of intervertebral discs.

3. Standardization of vitamine therapy and elimination of unnecessary and expensive drugs.

4. Clearer evaluation of the methods of standardization of chemotherapy and serotherapy in meningitis.

5. Radical operations upon the brain or spinal cord for certain types of mobile spasm.

The aim of university medicine was formerly to seek the truth in biological science, that this truth might relieve the suffering of mankind — all mankind. This is an ideal to which, I hope, we may return before too long a time. But now, when the existence of academic freedom is threatened, when the survival of the culture of the English-speaking peoples is at stake, the members of a University faculty may legitimately forsake abstract study. They may introduce a previously unknown element of secrecy into their work. Those capable of it should follow the example set us by Sir Frederick Banting and turn to the practical medical problems which face our army, navy, and air service.

ITEMS OF INTEREST

Reports have been received regularly from Lt.-Col. C. E. Cross, Officer Commanding No. 1 Neurological Hospital, R.C.A.M.C., C.A.S.F. Copies of these have been sent to the close relatives of the personnel. Late in June 1940 the unit reached England and in September 1940 the Nursing Sisters followed. The men were under canvas near Bramshot until August 1940 when they moved to their permanent location in Hampshire. In September 1940 the admission of patients began. From the middle of December 1940 the unit was enrolled in the Emergency Medical Service as a surgical centre for the treatment of head injuries among the troops as well as among civilians. Huts are being built to enlarge the accommodation of the hospital. On several occasions during the year the Canadian Broadcasting Corporation broadcast greetings from the unit to relatives in Canada and the United States.

Lt.-Col. Colin Russel, in a recent letter, has described the present state of No. 1 Neurological Hospital in the following terms:

"You may have heard of a lack of cases in No. 1 Neurological Hospital, but you should not conclude from that that we have not been busy. We have built up a hospital which will shortly have 250 to 300 beds, with operating rooms, x-ray department, laboratories, pathological and chemical, where the estimation of total protein can be accurately done in ten minutes, or the sulphanilamide content of the blood and cerebrospinal fluid can be carried out, and sections made of autopsy material. We have our animal house and operating room, a morgue and mortuary chapel. Our case reports are well written up and worth their weight in gold to the Canadian tax-payers. When you consider the wash-rooms, baths and utility room accommodation it was necessary to add to this private residence in order to accommodate patients, you will realize something of the work that has been done, but you probably cannot estimate the difficulties that arise because of the shortage of material and the rules for conservation in force in England. We are less hampered by bureaucratic red tape than any other Unit over here. Dr. Cone and I are called in consultation two or three times a week to other hospitals, and, seriously, he is making a great reputation among the English hospitals, and it is well deserved. He has had some splendid results."

We have heard frequently also from our nurses who are overseas with No. 1 Neurological Hospital. Following their arrival in England several of them were lent to No. 15 Canadian General Hospital, and two of them, Sister Janet C. Mackay and Sister Etta Jones, were lent to No. 1 Canadian General Hospital when numerous casualties from Coventry were admitted to it.

During the year two much needed additions were added to the Institute. One was a second elevator, for passenger service, which was installed through the generosity of Mr. J. W. McConnell, and the other was the completion of the bridge joining the Institute to the Royal Victoria Hospital, which was made possible through the generosity of Messrs. Allan, Harry, Sam and Abe Bronfman and Mr. B. Aaron.

News regarding the fortunes of previous Fellows of the Institute have been received from time to time. Dr. and Mrs. Arne Torkildsen are safe in Oslo, Norway, and Dr. and Mrs. Jerzy Chorobski are still in Warsaw, Poland. Dr. Martin Nichols is a prisoner of war in Germany.

Dr. John Kershman has been appointed Executive Assistant to the Director to maintain supervision over the revenues and expenditures applying to the maintenance of the building and its hospital activities.

Members of the Staff hold the following offices in scientific societies and organizations:

DR. WILDER PENFIELD, President, the Royal College of Physicians and Surgeons of Canada; Member of the Medical Advisory Committee of the National Research Council; Vice-President, the International Neurological Association; Member of the Associate Committee on Aviation Medical Research, National Research Council of Canada.

DR. FRED H. MACKAY, Secretary of the Mental Hygiene Institute of Montreal; President, Montreal Medico-Chirurgical Society.

Dr. Donald McEachern, Member of the Council, Sigma Xi Society, McGill Chapter; Member of the Council, American Society for Clinical Investigation; Member of the Council, Montreal Physiological Society.

Dr. Arthur Young, Secretary of the Quebec Division of the Canadian Medical Association.

Dr. Antonio Barbeau, Director, Canadian Physiological Society.

Dr. Theodore Erickson, Secretary, Montreal Neurological Society.

Dr. Roma Amyot, Vice-President, Bureau Medical de l'Hôpital Notre Dame.

Dr. Norman Petersen, President, Montreal Neurological Society.

Dr. Arthur Elvidge, Vice-President, Montreal Neurological Society.

1940 Kershman made his report on the administration of the Institutes clinical activity by the RVH.
1940 Chenoweth discharged – propter hoc.
1940 Q.F. Stevens phens came on as Superintendant
the bridge opened into the RVH corridor

CARE OF PATIENTS

The clinical services in the public wards of the Institute are subdivided into, (1) a neurological service which, during the absence of Dr. Colin Russel, is under the immediate direction of Dr. Donald McEachern, and, (2) a neurosurgical service which, during the absence of Dr. William Cone, is under the immediate direction of Dr. Arthur R. Elvidge. The Director holds a supervisory control over both services while the Secretary and the Executive Assistant act as executive officers. All members of the medical staff share in the care of public patients and all are permitted to admit and care for private and semi-private patients. In addition to the patients hospitalized in the Montreal Neurological Institute the Department of Neurology and Neurosurgery also takes care of the neurological and neurosurgical patients in the Royal Victoria Hospital.

The clinical work in the Institute has increased year by year. While our original complement of beds was 47, during the past year our average occupancy has been 53. At times we have had as many as 62 or 63 patients in the Institute. The progressive increase in the number of patients cared for in the Institute is indicated by the following figures:

1934 (from September 27th)	189
1935	841
1936	912
1937	953
1938	999
1939	1079
1940	1093

Increasing costs of hospital supplies have accentuated our need for endowed beds and have increased our yearly deficit.

ADMISSIONS TO HOSPITAL

	1940	1939
Total admissions to the Montreal Neurological Institute and the Royal Victoria Hospital under the care of the Staff of the Montreal Neurological Institute and the Department of Neurology and Neurosurgery of the Royal Victoria Hospital	1155	1142
Admissions to the Montreal Neurological Institute	1058	1044
Admissions to the Department in the Royal Victoria Hospital	97	98
Because of the frequent transfer of patients between the Montreal Neurological Institute and the Royal Victoria Hospital the total number of patients cared for in the former was	1093	1079

Data regarding patients admitted directly to the Montreal Neurological Institute.

Residents of Montreal	454	(42.9%)
Residents of other municipalities	604	(57.1%)
Males	627	
Females	431	
Private patients	133	
Semi-private patients	185	
Public pay patients	452	
Public under Q.P.C.A. (Quebec Public Charities Act)	288	
Protestant	473	
Roman Catholic	470	
Hebrew	92	
Other religions	23	

	1940	1939
Total days' treatment	19428	19742
Average stay in hospital	17.7 days	18.2 days
Daily average number of patients	53	54
Daily average % of capacity (based on 56 beds)	94.6%	96.4%
Deaths	99	79
Deaths within 24 hours of admission	22	25
Death rate (on deaths after 48 hours)	6.79%	4.72%
Percentage of autopsies obtained	86.8%	72.1%

CHIEF DIAGNOSES IN FATAL CASES

Intracranial tumour	44
Other tumours	3
Head injury	17
Fracture of spine	2
Intracranial vascular lesion	6
Subarachnoid haemorrhage	3
Adhesive arachnoiditis	1
Hydrocephalus	1
Tuberculous meningitis	6
Intracranial abscess	6
Neurosyphilis	2
Asphyxia at birth	1
General arteriosclerosis	2
Hypertensive vascular disease	1
Agranulocytosis	1
Bronchopneumonia	2
Cirrhosis of liver	1
	99

OUTPATIENT DEPARTMENT

Outpatient clinics are held five days each week in the Royal Victoria Hospital

Monday and Thursday	*Neurology*
Tuesday and Friday	*Neurosurgery*
Wednesday	*Neurology* (Epileptic)

	Neurology	*Neurosurgery*	*Totals*
New Cases	595	160	755
Re-visits	4148	643	4791
Total outpatient visits	4743	803	5546

MONTREAL GENERAL HOSPITAL

Total visits to Neurological and Neurosurgical Outpatient Department	6182
Total admissions to Neurological Service in Hospital	275

During 1940 the neurological staff of the Montreal Neurological Institute saw 320 patients in consultation in the Royal Victoria Hospital.

REPORTS OF SUBDEPARTMENTS

ROENTGENOGRAPHIC DEPARTMENT

DR. T. E. W. HARDING, *Acting Roentgenologist*
DR. CARLETON PEIRCE, *Consulting Roentgenologist*

	1940	1939
Roentgenographic examination of patients	2289	2261
Films used	11679	11530
Encephalograms	445	498
Ventriculograms	123	84
Miscellaneous contrast media	110	61

A slight increase in the number of patients examined is again shown and the curve of activity in the department shows no reduction in the summer months. There has been a decrease in the revenues from the department and certain economies have been introduced including the use of smaller sized films in pneumographic examinations. It will be necessary also to make certain adjustments in the charges for some types of examination.

The attachment for tomographic examination, made by Mr. W. Whitehouse after the model of the late E. W. Twining of the Royal Infirmary, Manchester, has proven satisfactory and valuable. Tomographic examinations have been made on 21 patients and undoubtedly more will be done in the future. Cerebral arteriography with thorotrast has also been used to a greater extent during the past year. Many more air and lipiodol myelograms have been carried out than in previous years and it is believed that air myelograms are not of sufficient dependability to warrant enthusiasm.

DEPARTMENT OF ANAESTHESIA

DR. DOROTHEA M. WARDROP, *Anaesthetist*
DR. F. A. H. WILKINSON, *Consulting Anaesthetist*

Summary of anaesthetics administred in 1940

Avertin	82
Avertin and local	53
Avertin and ether	253
Avertin, ether and local	22
Nitrous oxide and oxygen	8
Nitrous oxide and ether	14
Ether	5
Miscellaneous	4
Local	57
Total	498
Total in 1939	363
Increase in 1940	135

DEPARTMENT OF CLINICAL PSYCHOLOGY

DR. MOLLY HARROWER-ERICKSON, *Clinical Psychologist*
MISS MATILDA STEINER, *Assistant Clinical Psychologist*

A study of the personality structure of psychoneurotic patients has been completed in the outpatient departments of the Royal Victoria and the Montreal General Hospitals with a view to the use of the Rorschach test in selection of military personnel.

Arrangements were made with the Warden of Douglas Hall to get together 100 or 125 students who might be regarded as a normal group of comparable age and type. Examination of these will place emphasis on the normal rather than on the hospital patient, although there will be facilities to examine the latter in certain cases where the examination may be of clinical importance.

Dr. Donald Ross discontinued his work in clinical psychology to undertake interne duties on the neurological service and Miss Matilda Steiner returned to Montreal to take his place in the department of Clinical Psychology. Mrs. F. R. Miale completed a short stay with us and has left Montreal.

Examinations carried out on patients from September 1939 to December 1940.

RORSCHACH TESTS

Patients from:		
Neurosurgery	144	
Neurology	92	
Outpatient Department	54	
Services or Physicians in Royal Victoria Hospital	94	
Services or Physicians in other hospitals	34	
Total	—	418
Research Groups:		
Normal control subjects	82	
Soldiers	97	
Other groups	84	
Total	—	273
Intelligence and Performance Tests on Patients		38
Total number of examinations		729

DEPARTMENT OF SOCIAL SERVICE

MRS. M. A. LANTHIER, *Supervisor*

	1940	1939
Number of patients placed for convalescent care	98	54
Number of patients placed for permanent care	37	21

The marked increase in the number of patients attending the Outdoor Clinics and of those admitted to hospital has meant an increase in follow-up studies.

The Junior League volunteers have continued to attend the outdoor clinics and have aided in routine clinic procedures. Two students from the Montreal School of Social work were supervised during the year and seven student nurses of the Royal Victoria Hospital received training for a week. Follow-up studies were carried out on patients who have had antiluetic treatment in our clinics and social investigations have been made in regard to many of our epileptic patients.

Patients referred to Social Service Dept. by outside agencies	182
" " " " " " by Montreal Neurological Institute	402
" " by " " " to outside agencies	238
Visits by Social Service Department to patients' homes	457

LABORATORY OF NEUROPATHOLOGY

DR. W. PENFIELD, *Neuropathologist pro tem*
DR. K. STERN, *Assistant Neuropathologist*
DR. EVERETT HURTEAU, *Neuropathological Fellow*

Clinical reports were made as follows:

Autopsy specimens	89
Surgical specimens	260
Miscellaneous pathology	22

Research has gone on much as in former years with the exception of the fact that the absence of Dr. Cone, on military service in England, has altered its character somewhat. Dr. Robert Pudenz is at present working for an M.Sc. on the healing and treatment of war injuries. Dr. William H. Bridgers is also working for an M.Sc. degree, on the general subject of the histology of epileptogenic wounds. Dr. Miguel Prados has been working on several different histological problems and Dr. R. L. Swank has collaborated with him in the study of the neurohistology of vitamin deficiency.

LABORATORY OF BIOLOGICAL CHEMISTRY

DR. D. MCEACHERN, *Biochemist*

Cerebrospinal fluid — Pandy tests	1285
Protein determinations	1284
Sugar "	43
Chloride "	41
Lange curves	389
Blood and Cerebrospinal fluid bromide determinations	10
Miscellaneous	5
Basal Metabolic Rate	182
Total	3239
Private and semi-private	941
Public	2298

Commencing on May 6th, 1940 all specimens of blood and cerebrospinal fluid for serological tests were sent to the Provincial Laboratories. To December 31st these specimens totalled 872, of which 249 were from private or semi-private patients and 623 from public patients.

Research problems conducted during the year include studies on the effect of thymus extract on creatinuria in rats by Miss Doris Brophy; Miss Mary Gibson has commenced the study of Thiamin excretion in patients with various neurological disorders. Clinical studies of the effect of vitamin E in various neuromuscular diseases have been continued.

LABORATORY OF ELECTROENCEPHALOGRAPHY

DR. H. H. JASPER, *Clinical Electrographer*
DR. J. KERSHMAN, *Clinical Assistant in Electrography*
DR. A. CIPRIANI, *Clinical Assistant in Electrography*

The department of electroencephalography, during the second year of operation, has shown a 62% increase in the number of patients examined. There has been only a 7% increase in the number of examinations made. This shows a marked decrease in the number of examinations required for each patient consequent upon improved methods of examination and further experience in the interpretation of the records obtained.

In 1940, there 1,185 examinations made on 1,051 patients. The principal diagnoses were as follows:

	No.	*Percent*
Epilepsy	605	57
Brain tumour (without epilepsy)	146	14
Head injury	85	8
Migraine and headache	37	4
Mental disease	35	3
Vascular disease	28	3
Chorea	17	2
Brain haemorrhage	10	1
Miscellaneous	69	6
Undiagnosed	21	2

Apparatus has been perfected for recording the electrical activity directly from the exposed brain in the operating room. Valuable corroborative evidence has thus been obtained. In some cases, the electroencephalogram taken in the operating room has been of assistance in guiding surgical procedures. Clinical research has been carried out in this department upon the following problems:

The Electroencephalogram in Head Injury.
Electroencephalographic Changes in Different Types and Localization of Cerebral Neoplasm.
Classification of the Epilepsies by Electroencephalography.
The Electroencephalogram in Sydenham's Chorea.
The Electroencephalogram in Focal Epilepsy.
Localization of Cerebral Discharge in "Petit Mal" Epilepsy.

Laboratory research has been carried out upon the following problems:

The effect of anaemia, apnoea and hyperpnoea upon the pH, blood flow, and electrical activity of the cerebral cortex.

Bilaterally synchronous cortical discharge from stimulation of the diencephalon.

The effect of Vitamin B^1 deficiency upon the electrical activity of the pigeon brain.

The electrical activity of the human brain as a conditioned response.

The clinical and research activities of this department were carried out in collaboration with Drs. Kershman, Cipriani, Erickson, Usher, Daniels, Swank, Mako, Mr. Shagass and other members of the staff of the Neurological Institute.

LABORATORY OF NEUROPHYSIOLOGY

DR. T. C. ERICKSON, *Neurophysiologist*

There has been a re-direction of the research activities in neurophysiology during the past year due to changing demands imposed by the war. An especial effort has been made to investigate the immediate problems of military neurosurgery. A total of 328 experiments were performed during the year. Among those who availed themselves of the laboratory facilities were Drs. R. Pudenz, M. Prados, F. McNaughton, G. Odom, P. Lehmann, A. Mako, A. Finlayson, W. Gibson, R. Swank and J. McMillan.

LABORATORY OF NEUROANATOMY

DR. F. L. MCNAUGHTON, *Neuroanatomist*

It has been possible during the past year to carry on a considerable amount of neuroanatomical work, as we were able to obtain the services of a trained technician, Mrs. Jean Whitelaw, through the support of the Means Research Fund.

Anatomical studies have been made of a number of cases where tract degenerations could be followed with the Marchi technique. Two cases in which a neoplasm of the third ventricle was associated with prolonged sleep, are now under investigation, with reference to possible hypothalamic centres controlling conciousness.

Further work on the anatomical basis of headache has been carried on, concerned particularly with the nerve supply of the intracranial blood vessels and meninges. With Dr. Stern, the thalamocortical connections are being studied in a group of human cases.

During the autumn months, the course in Advanced Neuroanatomy (Brain Modelling) was given in association with Dr. Kershman, to a selected group of undergraduate and graduate students. Two medical students have done anatomical work during the summer months. Mr. John Adams constructed a scale model of the human brain-stem in glass, and Mr. Eric Peterson studied the tract degeneration in some of our cases of antero-lateral tract section.

One of our aims is to build up an anatomical teaching collection in the Montreal Neurological Institute for the use of Research Fellows and to add to the value of the Advanced Course in Neuroanatomy. A good start has been made this year and it is hoped that it may be enlarged further in the coming years.

To continue this work, it is essential that we have the services of a technician, and it is hoped that the necessary financial support will be found.

REPORT OF NURSING SUPERVISOR

Miss E. C. Flanagan

In addition to the regular nursing staff as listed elsewhere in this report there are seven post-graduate students who remain from six months to a year, and six undergraduate nurses of the Royal Victoria Hospital, who stay for five weeks

In order to train graduate nurses for neurological and neurosurgical nursing a post-graduate course is given in the Institute. The minimum length of time is six months and this may be extended to two years if operating room experience is required. Lectures are given each week by members of the medical staff, on neuroanatomy, neurophysiology, neurology and neurosurgery, and the ward teacher conducts a class in nursing each morning.

The post-graduate students are assigned to the wards on day and night duty, and are given a considerable amount of supervision and teaching while on duty. These students who have come from all parts of Canada, and several from the United States, either return to their own hospitals to carry on neurosurgical nursing, remain on the staff of the Institute, or do private nursing for our service.

The rapid turnover of patients, and the high bed occupancy, mean that we are caring for patients in the acute stage of illness only, but there are advantages in this both from the teaching point of view and from the patients' point of view as it makes the service particularly interesting and instructive, and this is reflected in a better nursing service to the patients. It also means that all equipment must be kept at the maximum efficiency at all times.

TEACHING

McGILL UNIVERSITY

DEPARTMENT OF NEUROLOGY AND NEUROSURGERY

Professor and Chairman of the Department	WILDER PENFIELD
Associate Professor of Neurology	*COLIN RUSSEL
Associate Professor of Neurosurgery	*WILLIAM CONE
Clinical Professor of Neurology	F. H. MACKAY
Assistant Professor of Neurology	DONALD MCEACHERN
Assistant Professor of Neurosurgery	ARTHUR ELVIDGE
Assistant Professor of Neuropsychiatry	MIGUEL PRADOS
Lecturers in Neurology	J. KERSHMAN
" " "	F. MCNAUGHTON
" " "	J. N. PETERSEN
" " "	N. VINER
" " "	A. W. YOUNG
Lecturer in Neurological Roentgenography	*A. E. CHILDE
Lecturer in Neurological Electrography	HERBERT JASPER
Lectuerer in Clinical Psychology	M. HARROWER-ERICKSON
Lecturer in Neurosurgery	T. C. ERICKSON
Lecturer in Neuropathology	KARL STERN
Demonstrator in Neurological Electrography	ANDRÉ CIPRIANI
Assistant Demonstrators in Neurosurgery	GUY ODOM
" " " "	ROBERT PUDENZ
Assistant Demonstrator in Neuropathology	EVERETT HURTEAU

* On military service.

FACULTY OF GRADUATE STUDIES AND RESEARCH

Professor	WILDER PENFIELD
Associate Professor and Head of the Department	WILLIAM V CONE
Associate Professor	COLIN K. RUSSEL
Lecturers	ARTHUR E. CHILDE
	ARTHUR R. ELVIDGE
	MOLLY R. HARROWER-ERICKSON
	HERBERT H. JAASPER
	DONALD MCEACHERN
	FRANCIS L. MCNAUGHTON
	J. NORMAN PETERSEN
	MIGUEL PRADOS
	KARL STERN

COURSES OF INSTRUCTION

The lecture amphitheatre in the Institute, seating one hundred and twenty, is used not only by the Department of Neurology and Neurosurgery but also, on occasion, by all other teaching departments of the Royal Victoria Hospital, and certain groups from the Montreal General Hospital. Teaching facilities for small groups are available also in the library and in special rooms on the public clinical floors.

Undergraduate teaching in Neurology and Neurosurgery is carried out in the third and fourth years of the medical course and consists of formal lectures, ward teaching, and case presentations to small groups in the outpatient department. In addition an elective course of weekly case presentations of diseases of the nervous system is given by Dr. Wilder Penfield. This is open to students and practitioners before whom physical signs, diagnosis and treatment are discussed. Throughout the academic year a special elective course, with weekly lectures, is given and is divided into the following sections:—

Neuroanatomy, by Drs. Petersen, McNaughton, Erickson, Kershman and McNally.
Neuropathology, by Dr. Stern.
Electrophysiology, by Dr. Jasper.
Biological Chemistry, by Dr. McEachern.
Roentgenology, by Dr. Harding in the absence of Dr. Childe.
Psychology, by Dr. Harrower-Erickson.

A new elective course of five lectures entitled, "Introduction to the Study of Psychological Medicine" will be given by Dr. Prados during 1940-41.

In the Faculty of Graduate Studies and Research, courses are offered for the degrees of Master of Science and Doctor of Philosophy. The series of lecture-demonstrations described above as elective for undergraduates forms part of the post-graduate teaching in the Department. In addition graduate students attend a weekly coloquium in neuropathology, conducted by Professors Cone and Penfield, weekly clinical seminars conducted by Professors Penfield, Russel and Cone, and weekly complete ward rounds. The remainder of the time of the graduate student is devoted to experimental research, the accomplishment of which, as embodied in a thesis, is the main consideration in recommending him for a degree.

In addition to the above formal courses the Department provides opportunity for advanced clinical study and laboratory research to properly qualified graduate students. Such opportunities are described elsewhere in this report.

The weekly meetings of the Montreal Neurological Society form part of the graduate teaching in the Department of Neurology and Neurosurgery. These meetings consist of clinical presentations and of scientific lectures, usually by guest speakers. The clinical meetings are held alternately at the Montreal Neurological Institute and the Montreal General Hospital, with occasional visits to other hospitals in Montreal.

UNIVERSITY OF MONTREAL

FACULTY OF MEDICINE

Professor of Psychiatry ..... EMILE LEGRAND
Professor of Neurology ..... ANTONIO BARBEAU
Assistant Professors of Neurology ..... ROMA AMYOT
JEAN SAUCIER

THE FELLOWS' LIBRARY

DR. D. MCEACHERN, *Librarian,*

The Fellows' Library continued to be actively used by the members of the staff and others, and the Library room has been in frequent use for small meetings and case demonstrations.

Thirty-two English, American and Canadian periodicals are now being received regularly, and seven journals are being held over by foreign agents to be released when the war is over. This is an addition of nine periodicals. Most new subscriptions are for Military, Aviation, and Naval Medical Journals.

The Library now contains six hundred and seventy-two volumes, exclusive of bound periodicals, an addition of ninety-two volumes. Again many of these new volumes deal with recent advances in War Medicine. The collection on psychology and psychiatry has been enlarged, and many new editions of standard texts have been added.

In the spring of 1941, fluorescent daylight lamps were installed on the Library table, thus making for considerable improvement in reading conditions.

THE FELLOWS' SOCIETY

DR. EVERETT HURTEAU, *Chairman*

This organization, which is composed of all the research fellows and house officers, meets in the Fellows' Library every week or every two weeks for the purpose of holding scientific sessions. Some of these meetings are devoted to reviews of the current literature dealing with neurology and neurosurgery and others are given over to preliminary reports of research work in progress by the various research fellows. Guests from other departments of the Medical School are occasionally invited to present material which bears on the problems of neurology. The aim is to cover subjects which are not dealt with at larger and more formal meetings, and to foster active discussion and questions as well as to keep all who attend "au courant" with the problems which are under investigation at the Institute.

The meetings of this group have a definite function in the scientific life of the Neurological Institute, namely to furnish a place for active discussion of new experimental work and hypotheses, to enable everyone to learn of the research work in progress, to bring in outside speakers to cover subjects not dealt with in the more formal meetings and to discuss new research which appears in the current literature.

THE MONTREAL NEUROLOGICAL SOCIETY

DR. J. NORMAN PETERSEN, *President*
DR. ARTHUR R. ELVIDGE, *Vice-President*
DR. THEODORE C. ERICKSON, *Secretary-Treasurer*

Clinical and scientific meetings were held each week throughout the academic year. Clinical meetings were held at the Montreal General Hospital, the Montreal Neurological Institute, Notre-Dame Hospital, Hôtel-Dieu, and Verdun Protestant Hospital. Scientific meetings were held in the amphitheatre of the Montreal Neurological Institute.

The annual Hughlings Jackson lecture of the Montreal Neurological Institute was presented on January 29th, 1941, by Dr. S. W. Ranson of Chicago. His title was Experimental Studies on the Corpus Striatum.

Visiting speakers and their subjects were as follows:

Dr. Hans Selye, Montreal — Surgical Shock.
Dr. John Scudder, New York — Shock, Blood Studies as a Guide to Therapy.
Dr. Walter Freeman, Washington — The Radical Therapy of Psychoses and Neuroses.
Dr. M. R. Brown, Boston — Ménière's Syndrome.
Dr. Frederick Gibbs, Boston — The Cortical Frequency Spectrum: its Correlation with Personality, Intelligence and Scholastic Standing.
Dr. R. W. Gerard, Chicago — Metabolic and Structural Aspects of Neural Degeneration and Regeneration.
Dr. A. T. Mathers, Winnipeg — The Psychoneuroses.

An attempt was made throughout all these meetings to emphasize or to bring to light principles and practices which might be useful in war-time medicine.

CLINICAL SERVICES AND FELLOWSHIPS

An interneship of eighteen months' duration is available on January 1st and July 1st. The internes live in the Royal Victoria Hospital and have their meals there. Ordinarily the appointment consists of six months' service in neurology, six months in neurosurgery and six months as senior interne in neurosurgery with special supervision of the traumatic cases. Modifications in this routine are made, however, from time to time.

The appointment of neurological and neurosurgical Resident is of two years' duration. No candidates are considered unless they have had previous work on this service and in the laboratory. The Resident has his quarters in the Neurological Institute.

The appointment of Neuropathological Fellow is a yearly one open to men who have had previous work as interne or Laboratory Fellow. It carries with it residence in the Institute and a monthly stipend. The Neuropathological Fellow is responsible for pathological reports on autopsy material and surgical specimens, under the supervision of the Neuropathologist.

Two Fellowships are available for research in neuropathology, neuroanatomy, neurophysiology or biological chemistry. These Fellowships carry with them residence in the Institute and a small stipend. Applicants for these appointments must have demonstrated the fact that they are capable of independent work.

There is opportunity for two or more voluntary Fellows to do fundamental work of the type described above. The qualifications for these appointments are similar to those of the other Fellows. An externeship in either neurology or neurosurgery is available to men who are not in residence but who are qualified to play an active role in the service. No stipend is attached to these services. In neurosurgery the externe is expected to work up cases and to act as second assistant at operations, at the discretion and under the supervision of the Resident.

The Fellows and Externes are enabled to follow the progress of clinical problems by attending complete rounds once a week. A weekly pathological conference makes it possible for them to see the pathological material of the week, and weekly meetings of the Montreal Neurological Society are so planned that they may attend and take part in the discussions.

Applicants for Interneships, Fellowships and Externeships should send to the Registrar, with their applications, the names of three men as references, a careful description of their University, hospital and laboratory work up to the time of writing, an outline of future plans and a statement of age, nationality, religion, schooling, and if possible their rank in their final medical examinations.

Applicants for clinical services should have a speaking knowledge of the French language or should study it while awaiting their appointments. The City of Montreal and the Province of Quebec have a French speaking majority and many of our patients speak only that language. In our desire to render the best service possible to them we make every effort to have a bilingual staff.

THE NEEDS OF THE INSTITUTE

CLINICAL ACTIVITY

From the beginning the Neurological Institute has been filled with patients to its capacity. The Institute belongs to McGill University but the clinical unit is administered for the University by the Royal Victoria Hospital. The majority of the patients come under the heading of "public" and it is not considered to be the province of the University to undertake financial responsibility for the deficit which inevitably arises from the care of such patients. Hospitalization expense is quite properly covered by the contributions from the City of Montreal and the Province of Quebec, but there are crying needs not covered by the present generosity of the City and Province.

From other provinces and from the United States come sufferers who have raised enough money for the journey but who are unable to pay for a bed even at the daily public ward rate of $3.50 (which in reality is about one-half of the actual cost of maintaining that bed). Nevertheless, these patients come to our door in the desperate hope that they will be admitted. It is no doubt logical to suggest that they should be sent back, or that local subscription in their place of origin ought to have been made, as it often is, to cover all expenses of hospitalization. But as long as endowed research, as well as special equipment and training, make special forms of treatment available here, such patients will continue to throw themselves upon the mercy of the staff from time to time. To refuse help may mean suffering and perhaps death.

To meet such emergencies a "Transfusion and Clinical Relief Fund" has been created. As the title suggests, this fund is used for the cost of transfusions, when needed urgently by indigent patients, as well as to pay hospitalization expenses when no other support is available. It serves another useful purpose, to defray the costs of occasional clinical studies which are required for scientific purposes rather than for the immediate therapeutic need of the patient. For example, additional x-rays of a rare bone condition may be of considerable value to the staff in the study of that disease although it would be unfair to burden the account of the patient with such charges.

SCIENTIFIC ACTIVITY

The second purpose of the Neurological Institute is the advancement of knowledge in a field which is in some ways the most obscure and yet filled with the greatest possibility of good to mankind. This scientific activity which includes pathological, physiological, anatomical and biochemical studies of the nervous system, is supported in part by the endowment given by the Rockefeller Foundation.

Because of decreased income from securities the funds derived from this endowment are annually ten thousand dollars less than the minimum which was estimated as necessary for this purpose. Consequently the laboratory work has been handicapped and has fallen short of its full possible realization. Increased income is needed particularly for the endowment of Research Fellowships.

SPECIFIC NEEDS

For the information of those who might desire to help the work of the Institute a few specific examples of our needs are added below.

A. — Transfusion and Clinical Relief Fund. Donations of any size are welcome and may be addressed to the Montreal Neurological Institute and marked for this fund.

B. — Free Beds. The cost of endowing one public bed in perpetuity in the Institute, to be named by the donor and maintained free for indigent patients, is not less than $25,000.00. There is a need for at least two such endowed beds in the public wards.

C. — Research Fellowships. The sum necessary for such a Fellowship is $1,200 annually or not less than $30,000 as a permanent endowment. If desired by the donor these Fellowships may be named as a memorial and publications of work done during the tenure of such a grant would bear the name of the Fellowship, e.g. "John Smith Memorial Fellowship". Each of these would support a recent graduate in medicine while carrying out advanced study and research. At least four such Fellowships are urgently needed.

D. — The Fellows' Library. This library contains journals and special neurological books needed for the studies in progress both scientific and clinical. The books here supplement those in the University Medical Library without duplicating them. There is a waiting-list of books and journals which cannot be purchased without exceeding the library appropriation. Any donation to the library would bear the donor's name on the fly-leaf. Ten dollars will purchase a text-book, $400.00 a many-volume handbook of neurology and $900.00 the back file of a neurological journal.

FORM OF DONATION

I give and bequeath to McGill University, Montreal, for the Montreal Neurological Institute $..... the same to be and become a part of the general endowment fund of the said Institute and to be known as the (here insert name of testator or a name selected by him) ..... Endowment Fund the income only to be used for the furtherance of (the charitable) (the scientific) (the charitable and scientific) work of the Montreal Neurological Institute.

DONATIONS

From the Rockefeller Foundation:	
For the Department of Electroencephalography	$12,500.00
From Messrs. Harry, Allan, Sam and Abe Bronfman and Mr. B. Aaron:	
To complete the bridge from the Institute to the Royal Victoria Hospital	10,000.00
From Mr. J. W. McConnell:	
To install a second elevator in the Institute	15,367.00
From the Joseph Macy Foundation of New York:	
For Psychological Research	1,500.00
From the Carnegie Corporation:	
As grant in aid of Neuropathology as applied to Neuropsychiatry	4,800.00
From Doctor and Mrs. Lester M. Wieder:	
For the transfusion and clinical relief fund	316.34
From Mr. G. H. Duggan:	
For research on surgical instruments	500.00

CLASSIFICATION OF DISEASES

Nervous System Generally:

Meningoencephalomyelitis	1
Neurosyphilis	39
Multiple sclerosis	28
Progressive muscular atrophy	1
Amyotrophic lateral sclerosis	2
Myasthenia gravis	6
Avitaminosis	3

Meninges:

Meningocele and/or myelomeningocele	8
Chronic adhesive arachnoiditis	13
Acute meningitis	13
Benign lymphocytic choriomeningitis	2
Pachymeningitis haemorrhagica interna	1
Cyst of dura	3
Subdural abscess	2
Spontaneous subarachnoid haemorrhage	10
Traumatic meningeal haemorrhage	64
Subdural effusion	8
Varix meningo-rachidien veins	1
Posttraumatic headache	18
Other headaches	28

Brain:

Congenital anomalies	5
Arnold-Chiari malformation	2
Hydrocephalus	12
Acute encephalitis	2
Boeck's sarcoid of cerebellum	2
Chronic encephalopathy	3
Cerebral abscess	12
Cerebral concussion	65
Cerebral contusion and/or laceration	15
Herniation of cerebellum	2
Foreign body	1
Meningocerebral or cerebral cicatrix	23
Cyst of brain	6
Epilepsy	182
Syncope	2
Carotid sinus syndrome	4
Migraine	12
Cerebral arteriosclerosis	15
Cerebral haemorrhage, thrombosis or embolism	34
Encephalomalacia	11
Intracranial aneurysm	6
Cerebral atrophy	18
Paralysis agitans	6
Tuberous sclerosis	11
Intracranial calcification	1

Tumours of Nervous System:

Blood vessel tumour	9
Glioma	52
Perineurial fibroblastoma	10

Meningeal fibroblastoma	21
Sarcoma	8
Carcinoma	5
Pituitary adenoma	9
Colloid cyst of 3rd ventricle	1
Papilloma of choroid plexus	1
Melanoma	1
Cranio-pharyngeal pouch tumour	7
Chordoma	1
Tuberculoma	4
Neurofibromatosis	1
Cholesteatoma	1
Unclassified tumour	6
Unverified tumour and tumour suspect	36

Spinal Cord:

Neuronitis	1
Acute anterior poliomyelitis	1
Post-poliomyelitic paralysis	1
Radiculitis	1
Transverse myelopathy	10
Lateral sclerosis	3
Dorso-lateral sclerosis	4
Compression of spinal cord	18
Concussion of spinal cord	2
Contusion of spinal cord	2

Cranial and Peripheral Nerves:

Mixed cranial nerve palsies	1
Optic atrophy	1
Retrobulbar neuritis	5
Trigeminal neuralgia	41
Peripheral facial palsy	5
Ménière's syndrome	11
Glossopharyngeal neuralgia	1
Lesions of brachial plexus or branches	4
Lesions of lumbo-sacral plexus or branches	3
Herpes zoster	1
Multiple neuritis	5
Sciatica	5
Other neuralgias	12
Acrodynia	1
Scleroderma	1
Causalgia	1
Spasmodic torticollis	1
Facial spasm	2
Other spasms or tics	2

Mental Diseases:

Mental deficiency	16
Alcohol or drug addiction	22
Psychoneurosis	51
Manic-depressive psychosis	6
Reactive depression	12
Schizophrenia	16
Paranoia and paranoid conditions	2
Miscellaneous	24

Other Systems and Miscellaneous:

Developmental cranial and spinal anomalies	6
Spina bifida and cranium bifidum	13
Hyperostosis cranii	7
Herniation of intervertebral disc	19
Hypertrophy of ligamentum flavum	3
Muscular dystrophies	3
Fracture of the skull	78
Fracture and/or dislocation of vertebral column	21
Other fractures and dislocations	28
Tuberculosis of the spine	1
Lacerations, contusions, abrasions and/or haematomas	74
Carcinoma	15
Diseases of the body as a whole	28
" " " cardio-vascular-renal system	81
" " " respiratory system	37
" " " gastro-intestinal system	18
" " " genito-urinary system	16
" " " hematopoietic system	7
" " " endocrine system	31
" " " locomotor and integumentary system	61
" " " eyes, ears, nose and throat	41
Miscellaneous	16
Diagnosis deferred	41
No disease	3

CLASSIFICATION OF OPERATIONS

Craniotomy, miscellaneous	3
" exploration	11
" decompression	14
" removal of tumour	85
" removal of focus	6
" drainage or removal of cyst	7
" excision of cicatrix	9
" lobectomy	7
" drainage of abscess	12
" drainage of subdural space	12
" rhizotomy	20
" removal of extradural haemorrhage	5
" separation of adhesions	9
" drainage of intracerebral haemorrhage	3
" incision of tentorium	2
" débridement of cerebral contusion	3
Laminectomy, miscellaneous	7
" removal of tumour	10
" rhizotomy	2
" removal of nucleus pulposus	10
" separation of adhesions	2
Spinal fusion and bone graft	10
Plastic repair of spina bifida or cranium bifidum and/or meningocele and myelomeningocele	12
Trepanation, miscellaneous	75
" subdural insufflation	11
" insertion of electrodes	3
" exploration and drainage of subdural space	15
" aspiration of cyst	2
Encephalography	463
Ventriculography	58
Arteriography	12
Carotid sinuneurectomy	2
Ligation of carotid arteries	3
Elevation of depressed skull fracture	25

Débridement and suture of wound	22
Application of skull traction	9
Plastic repair of wound	6
Exploration of nerve, removal of neuroma, and nerve suture	4
Nerve anastomosis, hypoglossal-facial	2
Neurolysis and neurectomy	2
Sympathectomy and ganglionectomy	15
Re-exploration of wound and/or re-elevation of bone flap	9
Miscellaneous	19

DR. JEAN SAUCIER:

Potassium Chlorate in the Treatment of Poliomyelitis. (With O. W. Stewart). Can. Med. Assoc. Journ. 42:19-22, 1940.

Paralysie unilatérale des six derniers nerfs craniens. L'Union Méd. du Canada, 69: 157-162, 1940.

L'hydrocéphalie. Ste-Justine Hospital Year Book 1940.

Les convulsions infantiles. St. Justine Hospital Year Book 1940.

DR. O. W. STEWART:

(See under Jean Saucier).

DR. ROY L. SWANK:

Avian Thiamin Deficiency — a Correlation of the Pathology and Clinical Behavior. J. Exper. Med. 71:683, 1940.

Wallerian Degeneration in the Sciatic Nerve of the Rat. Arch. Path. 30:689, 1940.

Recovery of Virus Morphologically Identical with Psittacosis from Thiamin Deficient Pigeons. (With H. Pinkerton). Proc. Soc. Exper. Biol. & Med., 45:704, 1940.