WILDER PENFIELD, M.D.,
MONTREAL NEUROLOGICAL INSTITUTE
3801 UNIVERSITY STREET
MONTREAL

MONTREAL NEUROLOGICAL INSTITUTE

ANNUAL REPORTS

FIRST TO ELEVENTH

1934-1935 - 1945-1946

1st Report

Montreal Neurological Institute

Registrar's Report

●

1934 — 1935

1st Report
1934-1935

— 19
1935

To

THE DIRECTOR,

MONTREAL NEUROLOGICAL INSTITUTE.

Sir:

On the completion of the first calendar year of activity of the Montreal Neurological Institute, this, the first Annual Report has been prepared. To make permanent record of the work of the Institute since its opening, the activities of the three months of 1934 during which it functioned have been included.

On October 6th, 1933, His Excellency, the Right Honourable the Earl of Bessborough, Governor-General of Canada, laid the corner stone of the Montreal Neurological Institute. On that occasion the late Sir Arthur Currie, then Principal of McGill University, gave the principal address. On September 27th, 1934, the Institute was formally declared open by the Chancellor of the University, Sir Edward Beatty.

At the inaugural ceremonies many prominent neurologists and neurosurgeons from both sides of the Atlantic were present, as well as the proper representatives of the Universities of McGill and of Montreal. Foundation Lectures were delivered by Dr. Gordon Holmes, of London, England, and Dr. Harvey Cushing, of New Haven, Connecticut. These lectures, together with the other addresses delivered at that time and the biographies noted in the "List of Publications" of this report, have been collected into a Foundation Volume published by the Oxford University Press.

In the vestibule is a plaque which acknowledges the part played by those who made the Institute possible:

McGill University
acknowledges with gratitude generous
donations toward the erection and
maintenance of this building

ROCKEFELLER FOUNDATION

PROVINCE OF QUEBEC

CITY OF MONTREAL

SIR HERBERT HOLT

J. W. MCCONNELL

WALTER STEWART

FOUR ANONYMOUS DONORS.

The Rockefeller Foundation gave one half the money required to build the Institute. This money was considered to be the amount necessary to construct the scientific half and the private individuals mentioned in the plaque have built the clinical half of the edifice. In addition, the Rockefeller Foundation donated a permanent fund of one million dollars, the income of which is to be devoted to the maintenance of scientific work in the department of Neurology and Neurosurgery. The Foundation therefore built and endowed the laboratories without undertaking any responsibility for the sick poor of this country. The Province of Quebec and the City of Montreal, under the leadership of Premier Louis Alexandre Taschereau and Mayor Camillien Houde, have promised a yearly stipend necessary for clinical upkeep.

All hospital activities in the Institute are administered under special agreement by the Royal Victoria Hospital. In consideration of this, McGill University has agreed to indemnify the hospital up to an amount which has been estimated as the deficit at the beginning of each year. This arrangement has proved very satisfactory, allows of more intimate association between the Institute and the Hospital and makes easy the transfer of patients from one to the other.

The building and the scientific activities are all administered directly by McGill University which is also the owner of the Institute. The immediate control of the entire Institute and its activities is exercised by the Director, and the Registrar acts as his executive assistant. The Medical Staff consists of both French and English practitioners and through their other affiliations the Institute retains a close contact with most of the hospitals in Montreal. The extent of this co-operation is well shown in the following list:

MEDICAL STAFF

Positions in Institute	*Other Hospital Associations*
ROMA AMYOT, B.A., M.D. (Paris) *Associate Consulting Neurologist*	Notre Dame Hospital Verdun General Hospital Sanitorium Prevost.
E. C. BROOKS, L.R.C.P. and S. (Edin.) *Consulting Roentgenologist.*	Royal Victoria Hospital Montreal Children's Hospital.
A. E. CHILDE, M.D. *Roentgenologist.*	Children's Memorial Hospital Montreal Children's Hospital
WILLIAM V. CONE, B.S., M.D., C.M., F.R.C.S. (C) *Neurosurgeon, Neuropathologist.*	Royal Victoria Hospital Montreal General Hospital Children's Memorial Hospital Women's General Hospital Homoeopathetic Hospital.
ARTHUR R. ELVIDGE, M.S., M.D., C.M., Ph.D., F.R.C.S. (C) *Associate Neurosurgeon.*	Royal Victoria Hospital Montreal General Hospital Montreal Children's Hospital Verdun Protestant Hospital.
HAROLD M. KEITH, M.B. (Tor.) *Assistant Neurologist.*	Children's Memorial Hospital Montreal Children's Hospital.

EMILE LEGRAND, M.D., Médecin Légiste (Paris). *Associate Consulting Neurologist.*	Hotel Dieu St. Jean de Dieu.
FRED H. MACKAY, M.D., F.R.C.P. (C) *Consulting Neurologist.*	Montreal General Hospital Children's Memorial Hospital Shriners Hospital Military Hospital, Ste. Anne de Bellevue Mental Hygiene Institute.
DONALD MCEACHERN, M.D. *Associate Neurologist, Biological Chemist.*	Royal Victoria Hospital.
FRANCIS L. MCNAUGHTON, B.A., M.D., C.M. *Clinical Assistant.*	Montreal General Hospital.
A. G. MORPHY, B.A., M.D. *Associate Neurologist.*	Royal Victoria Hospital Lovat Hall, Lancaster, Ont.
WILDER G. PENFIELD, Litt.B., M.D., B.A., M.A., B.Sc., D.Sc. (Oxon), F.R.C.S. (C), F.R.S.C. *Director.*	Royal Victoria Hospital Montreal General Hospital Children's Memorial Hospital Jewish General Hospital Verdun Protestant Hospital.
J. NORMAN PETERSEN, B.Sc., M.D., C.M. *Registrar. Associate Neurologist.*	Royal Victoria Hospital St. Mary's Hospital Mental Hygiene Institute.
COLIN K. RUSSEL, B.A., M.D., C.M., F.R.C.P. (C) *Neurologist, Neuroanatomist.*	Royal Victoria Hospital Children's Memorial Hospital. Mental Hygiene Institute.
JEAN SAUCIER, B.A., M.D., (Paris), M.D. (Montreal). *Associate Consulting Neurologist.*	Notre Dame Hospital St. Justine Hospital Sanitorium Prevost St. Jean D'Arc Hospital.
NORMAN VINER, B.A., M.D., C.M., F.R.C.P. (C). *Associate Neurologist.*	Montreal General Hospital Jewish General Hospital Verdun Protestant Hospital.
ARTHUR W. YOUNG, M.D., C.M., F.R.C.P. (C). *Associate Neurologist.*	Royal Victoria Hospital St. Mary's Hospital. Children's Memorial Hospital Mental Hygiene Institute.

HOUSE STAFF

THEODORE C. ERICKSON, M.A., M.Sc., M.D.	Resident. 1934-35.
EXUM WALKER, M.D.	Resident. 1935-36.
DONALD F. COBURN, M.D.	Service terminated July 1935.
WILLIAM T. GRANT, M.D.	
JOHN KERSHMAN, B.Sc., M.D., M.Sc.	
NATHAN C. NORCROSS, S.B., M.D.	
DAVID L. REEVES, A.B., M.D.	Service terminated July 1935.
W. LISTER REID, M.B., B.S.	Service terminated July 1935.

NEUROPATHOLOGICAL FELLOWS

WILLIAM T. GRANT, M.D. ..... 1934-35.

DONALD F. COBURN, M.D. ..... 1935-36.

RESEARCH FELLOWS

E. B. BOLDREY, A.B., A.M., M.D.

WILLIAM GIBSON, B.A.

WEBB HAYMAKER, M.D.

F. L. MCNAUGHTON, B.A., M.D., C.M.

NATHAN C. NORCROSS, S.B., M.D.

DAVID L. REEVES, A.B., M.D.

W. LISTER REID, M.D., B.S.

J. SANCHEZ PEREZ, M.D. Fellow-Junta para Ampliacion de Estudios Spain.

GEORGE STAVRAKY, M.D., C.M., M.Sc.

I. M. TARLOV, A.B., M.D., M.Sc.

VOLUNTARY RESEARCH FELLOWS AND EXTERNES

MR. E. MILES ATKINSON, F.R.C.S.

RALPH M. STUCK, A.B., M.D.

LORNE MCCONNELL, M.D.

Members of the Staff hold the following teaching appointments at McGill University and at the University of Montreal.

McGILL UNIVERSITY

Professor of Neurology and Neurosurgery ..... WILDER PENFIELD.

Clinical Professors of Neurology ..... COLIN RUSSEL.
F. H. MACKAY.

Assistant Professor of Neurology and Neurosurgery ..... WILLIAM CONE.

Lecturers in Neurology ..... DONALD MCEACHERN.
J. N. PETERSEN.
N. VINER.
A. W. YOUNG.

Lecturer in Neurosurgery ..... A. R. ELVIDGE.

Demonstrator in Pediatric Neurology ..... H. M. KEITH.

Assistant Demonstrator in Neurosurgery ..... T. C. ERICKSON.

Assistant Demonstrator in Neuropathology ..... W. T. GRANT.

Assistant Demonstrator in Neurophysiology ..... G. STAVRAKY.

UNIVERSITY OF MONTREAL

Professeur Agrégé of Neurology ..... EMILE LEGRAND.

Assistant Professor of Neurology ..... ROMA AMYOT.
JEAN SAUCIER.

NURSING STAFF

The nursing staff of the Institute is appointed by the Superintendent of Nurses of the Royal Victoria Hospital. The permanent staff consists of a general supervisor who is in charge, an assistant, who also acts as ward teacher, a night supervisor, an operating room supervisor, a head nurse on each of the three ward floors, an operating room assistant and five general duty graduate nurses, making a total of thirteen. In addition there are six post graduate students who remain for a period of from six months to two years, and nine student nurses who remain for two or three months. There is therefore a total nursing staff of twenty-eight.

PERMANENT NURSING STAFF

Supervisor: Miss Eileen Flanagan, B.A., R.N.

Assistant Supervisor and Ward Teacher: Miss Helen M. Eberle, R.N.

Night Supervisor: Miss Bertha Cameron, R.N.

Operating Room Supervisor: Miss Kathleen Zwicker, R.N.

Ward Floor Nurses: Miss Margaret Goldie, R.N.
Miss Lorraine McNichol, R.N.
Miss Marian Currie, R.N.

Assistant Operating Room Nurse: Miss Cora McLeod, R.N.

General Duty, Operating Room: Miss Eileen Kelly, B.Sc., R.N.

General Duty, Floors: Miss Margaret Casselman, R.N.
Miss Constance Lambertus, R.N.
Miss Evelyn Scott, R.N.
Miss Kathleen Kidd, R.N.

The distribution of the nursing services varies to some extent according to the activity of each division. The operating room has three nurses of the permanent staff and one post-graduate; the private floor with fifteen patients has a head nurse and three or four general duty nurses on day duty and two night nurses in addition to special duty nurses. The two public floors, with eighteen patients each, have each a head nurse and four or five nurses on day duty and two nurses on night duty.

The type of patient cared for in the Institute requires more than the ordinary amount of individual attention and observation, and the large number of procedures carried on in the diagnosis and treatment of these patients means that the nursing service has considerably more to undertake than observation and bedside care alone.

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. Members of the medical staff give one lecture a week in neuroanatomy, neurophysiology, neurology or neurosurgery and the ward teacher conducts a class in nursing three mornings a week. The post-graduate students are assigned to the public floors on day and night duty and are given a considerable amount of supervision and teaching while on duty.

TECHNICIANS AND LABORATORY ASSISTANTS

Miss D. Brophy, B.A., Licenciée ès Science	*Chemistry.*
Miss C. Dart, R.N.	*Neuro-physiology.*
Miss I. V. Finlay	*Neuro-pathology.*
Mr. A. Goddard	*Neuro-pathology.*
Mr. H. S. Hayden, F.R.P.S.	*Photography.*
Mr. G. Peladeau	*Neuro-physiology.*
Mr. W Whitehouse	*Roentgenology.*

SECRETARIAL STAFF

Miss Hope Lewis
Miss Winifred Smith
Miss Helen O'Mara
Miss Imelda Walsh

The functions of the Institute can be divided into the three groups of care of the sick, neurological investigation and University teaching.

HOSPITAL DIVISION

The second floor of the building (one flight up) and the third floor are devoted to public patients, being nearly identical in arrangement. The Sir Herbert Holt ward on the third floor and the J. W. McConnell ward on the second floor accommodate twelve beds each. The lighting in these wards, as well as in the smaller ones, is entirely from windows at the end of each ward, and, with reflection from the cream coloured ceiling, the light falls evenly on every patient. Nursing control is facilitated by placing a desk in a bay of glass which projects into the ward, so that every bed may be seen by the nurse. A common dressing room is so arranged that patients may easily be moved into it in their beds for surgical dressings, examinations or therapy.

There was originally a capacity of thirty-two public beds in the Institute for both neurological and neurosurgical cases but during the past year this has had to be increased to thirty-six. The general service and treatment rooms are quite large enough to permit the addition of another large ward on each floor. This would increase the accommodation of patients without other alteration except to install a second elevator in the space already provided, when and if occasion demands.

On the fourth floor there are nine small rooms for private patients. There are also two small wards with three beds each for semi-private patients, so arranged that the nurse in charge can see through windows from her desk into each ward without any loss of privacy for the patient. The fifth floor separates the patients below from the laboratories above. Here are two operating theatres with associated rooms. The main amphitheatre is provided with a viewing gallery which is entered by a narrow

pair of stairs from the visiting physicians' room. This obviates the necessity of visitors or research fellows, who come in to watch operations, passing through the operating room at all. Beneath the viewing gallery is a small photographic cellar with a window. The photographer enters this cellar from the viewing gallery and sets up his camera behind the window. A photographic mirror adjustable from the cellar is maintained over the operating field and above the operator's head. In this mirror the photographer can see the field and can take photographs routinely at every operation without fear of contamination and without confusion. The temperature and moisture of the air in the operating room are automatically controlled and the ventilation is carried out with thoroughly washed air, so that windows will never be open and danger of wound contamination from the air is thereby reduced to a minimum.

The smaller operating room is used chiefly for ventriculography and encephalography. It is connected with the X-ray room by large folding doors so that a patient may be wheeled in for X-rays after the introduction of oxygen, lipiodol or any other radiable substances into the cerebrospinal spaces, and may be taken for immediate operation if indicated.

The custom of including private offices in a public hospital follows the development of full time University Medicine in the United States, Canada and England. Consulting rooms in a clinic make it possible for some members of the professional staff to limit their entire work to that clinic with only occasional consultations outside. Such a system demands that those who are granted such consulting rooms shall make clinical research a greater desire than private practice. To this end two suites of consulting rooms are included in the building. Accommodation for three neurosurgeons is placed on the same floor as the operating rooms, the fifth floor, and consulting rooms for three neurologists are placed on the first floor, the ground floor.

No provision is made for a separate outpatient clinic in the Institute. Neurological and neurosurgical clinics are conducted in the outpatient department of the Royal Victoria Hospital, which is just across the street.

LABORATORY AND RESEARCH DIVISION

The sixth and seventh floors are given over to laboratories for pathology, chemistry and physiology. The laboratory research is carried on in general by men who continue to maintain an active interest in clinical work. The neuropathological laboratories occupy most of the sixth floor and they are equipped to meet the requirements of neuropathology as outlined by Dr. William Cone. Biological chemistry is also housed on the sixth floor where study of the cerebrospinal fluid is carried out routinely and where chemical research is available for neurological problems under the direction of Dr. Donald McEachern. In addition, the Fellows' Library is located on the same floor and contains current neurological journals as well as reference books which supplement those available in the library of the Medical School.

The neurophysiological laboratories occupy the seventh floor and are equipped for aseptic operating with the same care as ordinary clinical theatres. The quarters for animals are planned carefully so that any type

of animal can be made comfortable, and each room has an outdoor runway on the roof exposed to the sun. In addition, there is a large room on the first floor which has been planned for clinical and psychological research. This room contains a vibration free steel girder under the floor so that sensitive apparatus can be used without the danger of vibration. A studio for gross and microscopic photography is also placed on the first floor and space and lighting are available for motion picture photography. Routine photographic records are kept there of microscopic sections, patients and operations.

On the small eighth floor, the Fellows' quarters are located. The chief resident and four or five Fellows can be accommodated. The important work of research is carried on by men who have finished all preliminary training and who have not yet undertaken positions of responsibility. Some of them are voluntary laboratory assistants, others are on a research stipend from the department budget. These men may be wandering students from any part of the world. Adjacent to the living quarters is a squash court. The space for this was originally intended for laboratories but possibly it may serve the young men of the staff to better purpose in its present form.

TEACHING DIVISION

A lecture amphitheatre, seating one hundred and twenty, occupies space in the ground floor and basement and serves as a much needed addition to the University accommodation. This is used not only by the Department of Neurology and Neurosurgery but also on occasion by all the other clinical departments of the Royal Victoria Hospital. In addition special courses of lectures to nurses and meetings of the Montreal Neurological Society, and also of other societies, have been held there.

Teaching facilities for small groups are available in the library on the sixth floor and in the waiting rooms on the second and third floors.

CLINICAL SERVICES AND FELLOWSHIPS

The interneship of eighteen months duration consists of six months neurosurgery, six months neurology and six months as senior interne in the Neurological and Neurosurgical Outpatient Department combined with traumatic neurosurgical work. This eighteen months appointment is available on January 1st and July 1st.

The internes live in residence in the Royal Victoria Hospital and have their meals there.

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 a 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 Neuro-

pathological Fellow is responsible for pathological reports on autopsy material and surgical specimens, under the supervision of Dr. Cone.

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 fellowships must have demonstrated the fact that they are capable of independent work.

There is opportunity for two 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. These weekly meetings alternate between clinical demonstrations at the different hospitals and scientific lectures.

Applicants for Interneships, Fellowships and Externeships should send 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.

OUTPATIENT DEPARTMENT

The outpatient clinics are held five days each week in the Royal Victoria Hospital.

Monday and Thursday ..... Neurology

Tuesday and Friday ..... Neurosurgery

Wednesday ..... Neurology (Epileptic)

Admissions to O.P.D.	Sept. 27 to Dec. 31-1934	Jan. 1 to Dec. 31-1935
Referred by Outside Doctors	(44)	(142)
Referred to Neurology	75	283
Referred to Neurosurgery	30	124
Total New Cases	105	407

ADMISSIONS TO HOSPITAL

The Department of Neurology and Neurosurgery attends to cases not only in the Montreal Neurological Institute but also in the Royal Victoria Hospital. The following figures refer only to those cases treated in the Institute. The clinical services in the public wards of the Institute are subdivided into (1) a neurological service under the immediate direction of Dr. Colin K. Russel as neurologist and (2) a neurosurgical service under the immediate direction of Dr. William Cone as neurosurgeon. The Director holds a supervising control over both services while the Registrar acts as executive officer for both services and for the Institute in general.

Admissions:	Sept. 27 to Dec. 31-1934	Jan. 1 to Dec. 31-1935
To Neurology	64	236
To Neurosurgery	126	582
To Other Services		3
Transferred from Royal Victoria Hospital		20
	190	841

An analysis based on 825 patients admitted to the Institute during 1935 shows the following distributions as to sex, religion and economic status. Of these, 344 were resident in the City of Montreal and 481 were from districts outside of the City.

Sex:

Males	473
Females	352

Religion:

Protestant	411
Roman Catholic	313
Hebrew	73
Others	28
	825

Economic Status:

Private patients	143
Semi private patients	123
Public pay patients	337
Public patients admitted under the Quebec Public Charities Act	218
Admitted as free patients	4
	825

In the X-ray department during 1935 a total of 1311 patients were rayed and a total of 5864 plates were taken.

The following classifications of diseases, operations and deaths are based on the total number of patients cared for by the Department of Neurogy and Neurosurgery in the Royal Victoria Hospital and Montreal Neurogical Institute. In the period of 1934 included in this report the total mber of patients thus cared for was 215 and in 1935 it was 939.

CLASSIFICATION OF DISEASES

rvous System Generally:	1934	1935
af-mutism		1
rebrospinal syphilis	1	8
bes dorsalis	2	8
neral paresis	1	11
bo-paresis		4
ıltiple sclerosis	8	15
ıyotrophic lateral sclerosis	1	3
rebral arteriosclerosis	2	4
cephalomyelitis	3	
diagnosed disease of the nervous system		1
eninges:		
ronic adhesive arachnoiditis	4	22
ute leptomeningitis	4	
ningitis, pneumococcus		4
" streptococcus		8
" staphylococcus		1
" mixed infection		2
" aseptic		4
" tuberculous		2
chymeningitis hemorrhagica		1
ɔdural effusion		1
ɔdural abscess		1
tra-dural abscess		1
tra-dural hemorrhage, post-traumatic	1	2
ɔdural hemorrhage, post-traumatic	1	6
ɔarachnoid hemorrhage	5	7
ɔarachnoid hemorrhage, traumatic	12	36
ɔdural hematoma, infected		1
ɔsure of subarachnoid space		8
ningeal headache, cause undetermined		5

Brain:	1934	1935
Agenesis corpus callosum		3
Aplasia (absence) of septum pellucidum	1	
Hyperplasia		1
Microgyria and congenital anomalies		4
Cranium bifidum	1	1
Encephalocele	1	
Cerebral abscess	2	6
Echinococcosis with cyst formation	1	
Post-infectional encephalitis		2
Tuberculoma	1	4
Encephalitis periaxialis diffusa		1
Lead encephalopathy	1	1
Chronic encephalopathy	2	4
Post-infectional encephalopathy	1	
Encephalomalacia due to hemorrhage		1
Porencephaly		1
Dystonia musculorum	1	1
Cyst of brain		4
Syringobulbia		3
Hydrocephalus	3	6
Paralysis agitans		5
Bulbar palsy		2
Epilepsy	24	101
" focal	6	45
" post-traumatic	1	9
" autonomic		1
Narcolepsy	1	
Migraine		2
Cephalalgia	2	
Cerebral hemorrhage	2	7
Cerebral thrombosis	3	10
Cerebral infarction		1
Intracranial aneurysm		4
Air embolus		1
Cerebral atrophy	5	30
Cerebral degeneration	1	1
Herniation of brain		3
Spinal Cord:		
Bifurcation of spinal cord		1
Cyst of cauda equina	1	
Spina bifida	4	3
Spina bifida with meningocele	2	4

	1934	1935
Spina bifida with myelomeningocele	1	8
Congenital anomaly of cauda equina		3
Myelitis	2	3
Post-poliomyelitis paralysis		2
Myelopathy, cause undetermined		1
" arteriosclerotic		1
Adhesions of cauda equina	1	
Hematomyelia		1
Syringomyelia		5
Compression of spinal cord	3	9
Herniation of spinal cord		1
Atrophy of spinal cord		2
Spastic paraplegia		1
Progressive muscular atrophy		3
Pseudo-hypertrophic muscular dystrophy		2
Dorso-lateral sclerosis	1	3
Cranial and Peripheral Nerves:		
Optic atrophy		2
Familial primary optic atrophy (Leber's disease)		1
Retrobulbar neuritis		2
Toxic amblyopia	2	
Ocular palsy		1
Facial paralysis, peripheral		1
Deafness		1
Laryngeal paralysis	1	
Trigeminal neuralgia	7	45
Other neuralgias	1	12
Paralysis of brachial plexus and its branches	1	9
Multiple neuritis	2	6
Herpes zoster		3
Spasmodic tic		1
Trauma:		
Cerebral concussion	16	74
" contusion	5	9
" laceration		3
Tentorial tear		2
Fracture of skull	9	46
Fracture-dislocation vertebral column	2	14
Transverse section of spinal cord	1	
Other fractures	9	17
Lacerations	12	63

	1934	1935
Avulsion cervical roots	1	
Contusions	6	27
Minor head injury		1
Abrasions	5	8
Hematoma	3	14
Gun-shot wound of head	1	3
Foreign body in orbit	1	
Post-traumatic headache	3	21
Cerebral cicatrix		14
Meningo-cerebral cicatrix		16
Cyst of brain, post-traumatic		1
Brush burn		6
Skull defect		5
Intracranial hemorrhage, traumatic		1
Post-traumatic neuroma		1
Tumours of Nervous System:		
Hemangioma		1
Hemangioendothelioma		1
Arterial angioma		2
Hemangioblastoma		1
Ganglioneuroma		1
Total Gliomas	23	54
Astroblastoma		1
Astrocytoma	5	11
Eypendymoma	1	3
Glioblastoma multiforme	5	19
Glioma—unclassified	6	6
Medulloblastoma	2	6
Neuro-epithelioma		1
Oligodendroblastoma		4
Oligodendroglioma	2	
Pinealoma	1	2
Spongioblastoma polare	1	1
Perineurial fibroblastoma	3	6
Neuroma	1	
Meningeal fibroblastoma	1	15
Teratoma		1
Metastatic carcinoma	1	3
Chromophobe adenoma of pituitary	1	2
Cranio-pharyngeal pouch tumor	1	3
Unclassified tumor		1

	1934	1935
Unverified tumor		4
Tumor suspect	1	8
Autonomic Nervous System:		
Raynaud's disease		4
Causalgia	2	
Angioneurotic oedema		1
Miscellaneous	5	4
Mental Diseases:		
Mental deficiency		8
Mongolian idiocy		1
Alcohol addiction	5	19
Heroin addiction		1
Post-traumatic psychosis		2
Post-operative psychosis		1
Psychoneurosis	16	54
Simple depression	1	7
Manic depressive psychosis	5	21
Dementia præcox	5	6
Paranoid condition		4
Malingerer		1
Miscellaneous	1	7
Other Systems and Miscellaneous:		
Pseudo-hypertrophic muscular dystrophy		2
Facio-scapulo-humeral muscular dystrophy	1	
Carcinoma	5	10
Tuberculosis	2	8
Diseases of cardio-vascular-renal system	8	58
" " respiratory system	7	21
" " gastro-intestinal system	1	21
" " genito-urinary system		12
" " hematopoietic system	3	7
" " endocrine system	5	35
" " locomotor and integumentary system	10	57
" " eyes, ears, nose and throat	7	50
Dislocation nucleus pulposus	1	3
Congenital syphilis		1
Latent syphilis (positive Wasserman)		3
Ethyl alcohol intoxication		5
Carbon monoxide poisoning		1

	1934	1935
Drug poisoning		4
Lead poisoning		1
Miscellaneous	1	9

CLASSIFICATION OF OPERATIONS

Craniotomy				4
"	exploration			9
"	decompression		1	2
"	biopsy			2
"	removal of tumor		8	22
"	partial removal of tumor		6	18
"	hypophysectomy			1
"	drainage of hypophyseal duct cyst			1
"	removal of tuberculoma			1
"	excision of cicatrix			19
"	lobectomy			1
"	removal of focus			2
"	removal of intracerebral hemorrhage		1	1
"	drainage of abscess		1	4
"	separation of adhesions and opening of cyst			1
"	injection of cyst with oxygen			1
"	ligature of artery			1
Subtemporal craniotomy				2
"	"	exploration		3
"	"	decompression	1	6
"	"	removal of tumor	2	1
"	"	partial removal of tumor		4
"	"	rhizotomy	2	6
"	"	ligature of artery		1
"	"	separation of adhesions	1	1
"	"	drainage subdural space		3
"	"	removal anterior pole of temporal lobe	2	
Suboccipital craniotomy			1	1
"	"	exploration	1	
"	"	removal of tumor	3	9
"	"	partial removal of tumor	2	4
"	"	excision of cicatrix	1	
"	"	rhizotomy, trigeminal	3	3
"	"	section of glossopharyngeal nerve	1	
"	"	drainage of abscess		1
"	"	incision and drainage of cyst		1
"	"	removal of adhesions	1	2
"	"	drainage of cisterna magna		2

	1934	1935
Plastic repair of spina bifida	4	4
" " " cranium bifidum		1
Laminectomy, exploration	2	2
" decompression	2	2
" exploration and fusion	1	4
" removal of tumor		6
" partial removal of tumor	1	5
" rhizotomy		4
" " and fusion	1	
" antero-lateral chordotomy		1
" drainage of abscess		1
" drainage of subarachnoid space	1	
" removal of adhesions	1	2
" reduction of dislocation and decompression		2
Trepanation	2	13
" ventriculography	9	64
" ventricular puncture	3	6
" biopsy	3	8
" drainage of subdural space		4
" insertion of wires for traction		3
" subdural insufflation		4
" exploration and injection of Ringer's solution into subdural space		1
" ligation of middle meningeal artery		1
" choroid plexectomy		2
" cauterization of choroid plexus		5
Encephalography, lumbar puncture	70	337
Arterial encephalography, injection of thorotrast	3	6
Anterior fontanelle puncture and ventriculography		1
Subdural insufflation of air, lumbar puncture		2
Periarterial sympathectomy		1
Sympathetic ganglionectomy	1	6
Carotid plexectomy		1
Elevation of depressed skull fracture	2	10
Debridement and suture of wound		14
Plastic repair of wound		2
Re-elevation of bone flap		2
Re-opening of wound and removal of bone flap		2
Application of skull traction		1
Application of skull traction and spinal fusion		1
Re-opening and exploration of wound		1
Sequestrectomy		2
Exploration of brachial plexus	1	1

	1934	1935
Nerve anastomosis, hypoglossal-facial	1	1
Avulsion of nerve		7
Nerve suture		2
Neurolysis		2
Miscellaneous	11	8
TOTAL	157	6^6

DEATHS IN HOSPITAL

September 27th to December 31st, 1934: total admissions—215; total deaths—15; deaths occurring more than 48 hours after admission—11.

Mortality rate based on deaths occurring after 48 hours—5.21 per cent.

Autopsies obtained—13, and percentage of autopsies obtained—86.8%.

January 1st, 1935 to December 31st, 1935: total admissions—939; total deaths—76; deaths occurring more than 48 hours after admission—58.

Mortality rate based on deaths occurring after 48 hours—6.29 per cent.

Autopsies obtained—59, and percentage of autopsies obtained—77.6%.

PUBLICATIONS — 1935

DR. WILDER PENFIELD:

Hydrocephalus and Spina Bifida. S.G. & O. 60: 363, February 1935.

A contribution to the mechanism of intracranial pain. Proc. Assn. Res. Nerv. & Ment. Dis. Vol. 15.

Visual pathways in man with particular reference to macular representation. (with J. A. MacMillan and J. P. Evans) Arch. Neurol. & Psychiat. 33: 816. April 1935.

Focal epileptic discharge in a case of tumour of the posterior temporal region. Can. Med. Assn. J. 33: 32, July 1935.

The frontal lobe in man: a clinical study of maximum removals. (with J. P. Evans) Brain, 58: part 1. 115, 1935.

Santiago Ramón y Cajal (Obituary). Arch. Neurol. & Psychiat. 33: 172, January 1935.

A technique for demonstrating the perivascular nerves of the pia mater and central nervous system. Am. J. Path. 11: No. 6. 1007, November 1935.

The principles of physiology involved in the management of increased intracranial pressure. Annals of Surgery, 102: No. 4, October 1935.

(see also under Elliott, H., and under Elvidge, A. R.)

DR. COLIN RUSSEL:

Constantin von Monakow. Biography. Arch. Neur. & Psychiat. 33: May 1935.

DR. WILLIAM CONE:

See under Hyndman, O.

DR. ROMA AMYOT:

Manifestations tardives d'un gliome cérébral interprétées comme étant celles d'un ramollissement cérébral. L'Union Médicale du Canada, 2: 150, février 1935.

Contribution a l'étude pathogénique de la maladie de Milroy ou trophoedème de Meige. (en collaboration avec Francois Trépagnier.) L'Union Médicale du Canada, 4: 389, avril 1935.

Tuberculomes sous-corticaux du lobe pariétal de l'hémisphère gauche du cerveau. Ablation non suivie de méningite tuberculeuse. Paraplégie pottique par abcès épidural. L'Union Médicale du Canada, 6: 686, juin 1935.

L'examen du liquide céphalo-rachidien et le diagnostic de la syphilis nerveuse. L'Union Médicale du Canada, 7: 794, juillet 1935.

Forme bulbo-protubérantielle de la sclérose en plaques. Début subit. Deux poussées en quatre ans. L'Union Médicale du Canada, 10: 1230, octobre 1935

DR. EVELYN ANDERSON:

See under Haymaker, W.

DR. GEORGE CHOROBSKI:

Camillo Golgi. Biography. Arch. Neurol. & Psychiat. 33: 163, Jan. 1935.

MR. HAROLD ELLIOTT:

Harvey Cushing. Biography. (with Lyle Gage and Wilder Penfield.) Arch. Neurol. & Psychiat. 34: 635, September 1935.

DR. ARTHUR ELVIDGE:

Sir Charles Sherrington. Biography. (with Wilder Penfield.) Arch. Neurol. & Psychiat. 34: 1299, Dec. 1935.

DR. THEODORE ERICKSON:

See under Torkildsen, A.

DR. JOSEPH EVANS:

A study of the sensory defects resulting from excision of cerebral substance in humans. Proc. Assn. Res. Nerv. & Ment. Dis. Volume 15.

Sir Victor Horsley. Biography. Arch. Neurol. & Psychiat. 33: 631. March 1935.

(See also under Penfield, W.)

DR. LYLE GAGE:

See under Elliott, H.

DR. WEBB HAYMAKER:

Elaboration of hormones by pituitary cells growing in vitro. (with Evelyn Anderson.) Proc. Socy. Exp. Biol. & Med. 33: 313, 1935.

Rio-Hortega's double silver impregnation technique adapted to the staining of tissue cultures. (with J. M. Sanchez-Perez.) Science, 82: No. 2128, p. 355, October 1935.

DR. OLAN HYNDMAN:

Silas Weir Mitchell. Biography. (with William Cone.) Arch. Neurol. & Psychiat. 34: 643, September 1935.

DR. HADDOW KEITH:

Experimentally produced convulsions: effect on thujone convulsions of insulin and of variations in water content of brain. Arch. Neurol. & Psychiat. 33: 353, Feb. 1935.

Experimental convulsions induced by administration of thujone. A pharmacologic study of the influence of the autonomic nervous system on these convulsions. (with George Stavraky.) Arch. Neurol. & Psychiat. 34: 1022, November 1935.

DR. EMILE LEGRAND:

See under Mackay, F. H.

DR. DONALD MCEACHERN:

John Hughlings Jackson. Biography. Arch. Neurol. & Psychiat. 33: 636, March 1935.

The metabolism of isolated surviving tissues from animals rendered hyperthyroid with thyroxine. Bull. Johns Hopkins Hosp. 56: No. 3, 145, March 1935.

Prostigmine in Myasthenia Gravis. Editorial. Can. Med. Assn. Jour., Sept. 1935.

Studies on the increased metabolism in hyperthyroidism. Annals of Int. Med. 9: No. 5, November 1935.

DR. F. H. MACKAY:

Jean Martin Charcot. Biography. (with Emile Legrand.) Arch. Neurol. & Psychiat. 34: 390, August 1935.

DR. F. MCNAUGHTON:

The use of ergotamine tartrate in migraine. Editorial. Can. Med. Assn. J. December 1935.

DR. J. N. PETERSEN:

Claude Bernard. Biography. (with Jean Saucier.) Arch. Neurol. & Psychiat. 34: 179, July 1935.

DR. J. SANCHEZ-PEREZ:

See under Haymaker, W.

DR. JEAN SAUCIER:

Oligodendrogliome calcifié du lobe frontal gauche. Importance des signes radiologiques L'Union Médicale du Canada, 64: 4, 407, avril 1935.

Syndrome de Brown-Séguard. Blocage sous-arachnoidien. Manifestations imprévues dues au lipiodol. L'Union Médicale du Canada, 64: 7, 800, juillet 1935.

La paliomyélite. Les tendances thérapeutiques actuelles. L'Union Médicale du Canada, 64, 11, 1352, novembre 1935.

(See also under Petersen, J. N.)

DR. WILBUR SPRONG:

Santiago Ramon y Cajal. Biography. Arch. Neurol. & Psychiat. 33: 156, January 1935.

DR. GEORGE STAVRAKY:

Ivan Petrovitch Pavlov. Biography. Arch. Neurol. & Psychiat. 33: 1082, May 1935.
(See also under Keith, Haddow.)

DR. ARNE TORKILDSEN:

Tumors of the glioma group. Acta Psychiatrica et Neurologica, 10: Fasc. 1-2, 1935.
(See also under Erickson, T.)

DR. ARTHUR YOUNG:

Franz Nissl, (Biography) and *Alois Alzheimer* (Biography). Arch. Neurol. & Psychiat. 33: 847, April 1935.

Case of Narcolepsy. Can. Med. Assn. J. 32: 677, June 1935.

In June 1935, the annual meeting of the American Neurological Association was held in Montreal under the presidency of Dr. Colin K. Russel and also the annual meeting of the American Association of Neuropathologists under the presidency of Dr. Wilder G. Penfield. This was the first occasion on which these societies had held their annual meetings outside the United States of America and they received open hospitality at the Montreal Neurological Institute.

Respectfully submitted,

J. N. PETERSEN, M.D.,

Registrar.

2nd Report
1936

To

THE DIRECTOR,

MONTREAL NEUROLOGICAL INSTITUTE.

Sir:

I have the honour to submit the second annual report of the Montreal Neurological Institute, for the calendar year of 1936.

All hospital activities in the Institute are administered by the Royal Victoria Hospital under special agreement with McGill University, while the building and scientific activities are administered directly by the University. The immediate control of the entire Institute and its activities is exercised by the Director, and the Registrar acts as his executive assistant. The Medical Staff consists of both French and English practitioners and through their other affiliations the Institute retains a close contact with most of the hospitals in Montreal.

The scientific and research activities of the Institute are made possible through the endowment, specifically made for these purposes, by the Rockefeller Foundation. The Province of Quebec and the City of Montreal donate yearly stipends to help make up the deficit resulting from the care of public ward patients and for general upkeep of the clinical departments.

On two occasions during 1936 His Excellency, the Right Honourable Lord Tweedsmuir, Governor-General of Canada, visited the Institute and following the second visit both he and Lady Tweedsmuir sent autographed photographs to us. Many other visitors were received at the Institute during the year.

MEDICAL STAFF

Positions in Institute	*Other Hospital Associations*
ROMA AMYOT, B.A., M.D. (Paris) *Associate Consulting Neurologist*	Notre Dame Hospital Verdun General Hospital Sanatorium Prevost
E. C. BROOKS, L.R.C.P. and S. (Edin.) *Consulting Roentgenologist.*	Royal Victoria Hospital Montreal Children's Hospital
A. E. CHILDE, M.D. *Roentgenologist.*	Children's Memorial Hospital Montreal Children's Hospital
WILLIAM V. CONE, B.S., M.D., F.R.C.S. (C) *Neurosurgeon, Neuropathologist.*	Royal Victoria Hospital Montreal General Hospital Children's Memorial Hospital Women's General Hospital Homoeopathic Hospital
ARTHUR R. ELVIDGE, M.S., M.D., C.M., Ph.D. F.R.C.S. (C) *Associate Neurosurgeon.*	Royal Victoria Hospital Montreal General Hospital Montreal Children's Hospital Verdun Protestant Hospital
JOSEPH P. EVANS, B.A., M.Sc., M.D. *Asistant Neurosurgeon.*	Royal Victoria Hospital
HADDOW M. KEITH, M.B. (Tor.) *Assistant Registrar, Assistant Neurologist.*	Children's Memorial Hospital Montreal Children's Hospital Women's General Hospital
EMILE LEGRAND, M.D., Médecin Légiste (Paris) *Associate Consulting Neurologist.*	Hotel Dieu St. Jean de Dieu.
FRED. H. MACKAY, M.D., C.M., F.R.C.P. (C) *Consulting Neurologist.*	Montreal General Hospital Children's Memorial Hospital Shriners Hospital Military Hospital, Ste. Anne de Bellevue Mental Hygiene Institute.
DONALD McEACHERN, M.D. *Associate Neurologist, Biological Chemist.*	Royal Victoria Hospital
FRANCIS L. McNAUGHTON, B.A., M.D., C.M. *Clinical Assistant.*	Montreal General Hospital.
A. G. MORPHY, B.A., M.D. *Associate Neurologist.*	Royal Victoria Hospital Lovat Hall, Lancaster, Ont.
WILDER G. PENFIELD, Litt.B., M.D., B.A. M.A., B.Sc., D.Sc. (Oxon), F.R.C.S. (C) *Director.*	Royal Victoria Hospital Montreal General Hospital Children's Memorial Hospital Jewish General Hospital Verdun Protestant Hospital
J. NORMAN PETERSEN, B.Sc., M.D., C.M. *Registrar. Associate Neurologist.*	Royal Victoria Hospital St. Mary's Hospital Mental Hygiene Institute.
COLIN K. RUSSEL, B.A., M.D., C.M., F.R.C.P. (C) *Neurologist, Neuroanatomist.*	Royal Victoria Hospital Children's Memorial Hospital Mental Hygiene Institute.
JEAN SAUCIER, B.A., M.D., (Paris), M.D. (Montreal) *Associate Consulting Neurologist.*	Notre Dame Hospital St. Justine Hospital Sanatorium Prevost St. Jean d'Arc Hospital

NORMAN VINER, B.A., M.D., C.M., F.R.C.P. (C) *Associate Neurologist.*	Montreal General Hospital Jewish General Hospital Verdun Protestant Hospital.
ARTHUR W. YOUNG, M.D., C.M., F.R.C.P. (C) *Associate Neurologist.*	Royal Victoria Hospital St. Mary's Hospital Children's Memorial Hospital Mental Hygiene Institute.

HOUSE STAFF

EXUM WALKER, M.D.	Resident.
EDWIN B. BOLDREY, A.B., A.M., M.Sc., M.D.	Service began July 1936.
W. T. GRANT, M.D.	Service terminated August 1936, Acting-Resident during July 1936.
JOHN KERSHMAN, B.Sc., M.D., M.Sc.	Service terminated December 1936.
N. C. NORCROSS, S.B., M.D.	Service terminated July 1936.
T. RASMUSSEN, M.D.	Service terminated August 1936.
I. M. TARLOV, B.A., M.D., M.Sc.	Service began September 1936.

NEUROPATHOLOGICAL FELLOW

DONALD F. COBURN, M.D.	Service terminated July 1936.
W. LISTER REID, M.B., B.S., (Adelaide)	Service began July 1936.

RESEARCH FELLOWS

EDWIN B. BOLDREY, A.B., A.M., M.Sc., M.D.	Service terminated July 1936.
A. J. CIPRIANI, B.Sc.	Service began October 1936.
JOSEPH P. EVANS, B.A., M.Sc., M.D.	Service began September 1936.
FRANCIS L. MCNAUGHTON, B.A., M.D., C.M.	Service began September 1936.
DAVID L. REEVES, A.B., M.D.	

VOLUNTARY FELLOWS

W. M. NICHOLS, M.B., Ch.B., F.R.F.P.S. (Glas.) Ure Fellowship.	Service began November 1936.
W. LISTER REID, M.B., B.S.	Service terminated July 1936.
KÁLMÁN VON SÁNTHA, M.D., Priv. Doc. (Budapest) Rockefeller Fellowship.	Service began October 1936.
RALPH M. STUCK, A.M., M.D.	Service terminated September 1936.

Members of the Staff hold the following teaching appointments at McGill University and at the University of Montreal.

McGILL UNIVERSITY

Professor of Neurology and Neurosurgery ..... WILDER PENFIELD.

Clinical Professors of Neurology ..... F. H. MACKAY.
C. K. RUSSEL.

Assistant Professor of Neurology and Neurosurgery ..... WILLIAM CONE.

Lecturers in Neurology ..... DONALD McEACHERN
J. N. PETERSEN
N. VINER
A. W. YOUNG.

Lecturer in Neurosurgery ..... A. R. ELVIDGE.

Demonstrator in Paediatric Neurology ..... H. M. KEITH.

Demonstrator in Roentgenology ..... A. E. CHILDE.

Assistant Demonstrator in Neurosurgery ..... T. C. ERICKSON.

Assistant Demonstrator in Neuropathology ..... W. T. GRANT.

Assistant Demonstrator in Neurophysiology ..... J. P. EVANS.

UNIVERSITY OF MONTREAL

Professeur Agrégé of Neurology ..... EMILE LEGRAND.

Assistant Professor of Neurology ..... ROMA AMYOT.
JEAN SAUCIER.

NURSING STAFF

Supervisor: MISS EILEEN C. FLANAGAN, B.A., R.N.

Assistant Supervisor and Ward Teacher: MISS HELEN M. EBERLE, R.N.

Night Supervisor: MISS BERTHA CAMERON, R.N.

Assistant Night Supervisor: MISS MAY COLLINS, R.N.

Operating Room Supervisor: MISS KATHLEEN ZWICKER, R.N.

Ass stant Operating Room Supervisor: MISS CORA MACLEOD, R.N.

Head Nurses: MISS LORRAINE MACNICHOL, R.N.
MISS CONSTANCE LAMBERTUS, R.N.
MISS MARGARET GOLDIE, R.N.

General Duty, Operating Room: MISS EILEEN KELLY, B.Sc., R.N.

Night General Duty, Operating Room: MISS LUCY MILLETTE, R.N.

General Duty, Floors: MISS EVELYN SCOTT, R.N.
MISS MARGUERITE MACLIMONT, R.N.
MISS ENID JONES, R.N.
MISS MILDRED HOWLETT, R.N.
MISS JOAN INGRAM, R.N.

Miss Josephine Riley, R.N.
Miss Isabell Barrington, R.N.
Miss Jean Mackenzie, R.N.

The nursing staff of the Institute is appointed by the Superintendent of Nurses of the Royal Victoria Hospital. The permanent staff consists of a general supervisor who is in charge, an assistant who also acts as ward teacher, a night supervisor with an assistant, an operating room supervisor, assistant, and two general duty nurses — one day and one night, a head nurse on each of the three floors and eight general duty nurses. In addition, there are seven post-graduate students, who remain for from nine months to one year, and six student nurses who remain for from two to three months. There is, therefore, a total nursing staff of thirty-two.

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. Members of the medical staff give one lecture a week in neuroanatomy, neurophysiology, neurology or neurosurgery and the ward teacher conducts a class in nursing three mornings a week.

The post-graduate students are assigned to the public floors on day and night duty and are given a considerable amount of supervision and teaching while on duty.

TECHNICIANS AND LABORATORY ASSISTANTS

Miss Doris D. Brophy, B.A., *Licenciée ès Sciences, Chemistry.*

Miss C. Dart, R.N. ..... *Neurophysiology.*

Miss I. V. Finlay, *Service terminated June* 1936 ..... *Neuropathology.*

Mr. A. Goddard ..... *Neuropathology.*

Mr. H. S. Hayden, F.R.P.S. ..... *Photography.*

Mr. G. Peladeau ..... *Neurophysiology.*

Mr. J. Warner, *Service began October* 1936 ..... *Neuropathology.*

Mr. W Whitehouse ..... *Roentgenology.*

SECRETARIAL STAFF

Miss H. Lewis ..... *Departmental Secretary.*

" A. Dawson ..... *Office.*

" E. Fanning ..... *Half-time, Manuscripts.*

Miss N. Gregg ..... *Half-time, Neuropathology.*

" I. Meagher ..... *X-ray and Administration.*

" H. O'Mara ..... *Records.*

" W. Smith ..... *Neuropathology.*

HOSPITAL DIVISION

Under the Department of Neurology and Neurosurgery patients are cared for not only in the Montreal Neurological Institute but also in the Royal Victoria Hospital. The clinical services in the public wards are subdivided into (1) a neurological service under the immediate direction of Dr. Colin K. Russel as neurologist, and (2) a neurosurgical service under the immediate direction of Dr. William V. Cone as neurosurgeon. The Director holds a supervising control over both services while the Registrar acts as executive officer. All members of the medical staff share in the care of public patients and they are all permitted to admit and care for private and semi-private patients.

To meet certain emergencies a "Transfusion and Clinical Relief Fund" was created on the opening of the Institute in September 1934. This fund is used for the cost of blood transfusions when needed urgently by indigent patients. It serves also to defray the costs of occasional clinical studies which are required for scientific purposes rather than for the immediate therapeutic needs of the patient. Donations to this fund, received during 1936, are acknowledged elsewhere in this report.

At the present time there are no endowed beds in the public wards of the Institute although there is a need for at least two of these for patients who are not provided for under the terms of the Quebec Public Charities Act. The cost of endowing one public bed in perpetuity, to be named by the donor and maintained free for indigent patients, is $25,000.00.

LABORATORY AND RESEARCH DIVISIONS

The neuropathological, neurophysiological and chemical laboratories, under the direction of Dr. W. V. Cone, Dr. A. R. Elvidge, and Dr. Donald McEachern respectively, have been active throughout the year and reports dealing with each of these appear elsewhere in this record.

Because of decreased income from securities, the funds derived from the endowment given by the Rockefeller Foundation are ten thousand dollars less annually than the minimum which was estimated as necessary for the proper maintenance of the laboratory and research activities. Consequentely 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.

D. McEachern W. L. Reid J. Kershman T. C. Erickson A. J. Cipriani K. v. Santha J. S. M. Robertson E. Legrand
H. M. Keith E. Walker J. P. Evans A. R. Elvidge A. G. Morphy A. W. Young A. E. Childe F. L. McNaughton N. Viner
R. Amyot J. Saucier C. K. Russel W. G. Penfield W. V. Cone F. H. Mackay J. N. Petersen
W. M. Witherspoon E. B. Boldrey D. L. Reeves R. Pudenz I. M. Tarlov

Each research fellowship requires $1,200.00 annually or $30,000.00 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.

TEACHING DIVISION

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 the other teaching departments of the Royal Victoria 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 fourth and fifth 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. Beginning in October 1937 a further elective course on the "Fundamentals of Neurology", and consisting of advanced neuroanatomy, neurophysiology, biological chemistry and Roentgenology, is to be given by members of the staff.

The courses described above as elective for undergraduates form part of the post-graduate teaching in the Department. In addition graduate students attend a weekly colloqium in neuropathology, conducted by Drs. Cone and Penfield, weekly meetings of the Montreal Neurological Society and weekly complete ward rounds.

Lectures to undergraduate and to graduate nurses are also given in the Institute by members of the staff.

CLINICAL SERVICES AND FELLOWSHIPS

The interneship of eighteen months' duration consists of six months neurosurgery, six months neurology, and six months as senior interne in the Neurological and Neurosurgical Outpatient Department combined with traumatic neurosurgical work. This eighteen months' appointment is available on January 1st and July 1st.

The internes live in residence in the Royal Victoria Hospital and have their meals there.

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 spervision of Dr. Cone.

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 fellowships must have demonstrated the fact that they are capable of independent work.

There is opporrtunity 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. These weekly meetings alternate between clinical demonstrations at the different hospitals and scientific lectures.

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.

NEUROPATHOLOGICAL LABORATORIES

DR. W. V. CONE ..... *Neuropathologist.*

The neuropathological laboratories have continued to serve as a common meeting ground where many of the activities of the research and clinical staffs are correlated. Dr. William Reid succeeded Dr. Donald Coburn as neuropathological fellow. He reports that there have been two hundred and twenty-four specimens from neurosurgical operations, seventy-six from autopsies on neurological cases and forty-three specimens sent from other clinics for opinions.

It is through the splendid co-operation provided by Dr. Horst Oertel's pathlogical department of the University and the Royal Victoria Hospital and through Dr. William Chase of that department that much of interest has been added to the work. Material of neuropathological interest obtained from general medical autopsies has been turned over to our department for study and has been most valuable.

The following men have worked on research problems in the laboratory: Dr. Boldrey — cytoarchitecture of the cortex, Evans — cerebral cicatrix, Kershman — cytogenesis of the central nervous system, McNaughton — innervation of the dura, Pudenz — neurohistology, Reeves — cytological reactions of the meninges to thorotrast, Reid — neuropathology, Stuck — reactions to thorotrast, Santha — neuropathology.

PHYSIOLOGICAL LABORATORIES

DR. A. R. ELVIDGE ..... *Neurophysiologist.*

The physiological laboratories are equipped for the purpose of investigating problems in applied physiology, neurology and neurosurgery. Research in the current year has embraced a variety of topics. Those arising in the clinic have been in many instances directly investigated in the laboratory. They have included studies connected with the physiology of the cerebral circulation, the mechanism involved in the production of headache, cerebral localization, epilepsy, problems in connection with the elucidation of certain neurological signs, bone grafting, ventriculography and arteriography. This experimental work has been carried on by fellows, graduate students and associated physicians.

Apparatus has been perfected by Mr. André Cipriani, undergraduate research fellow, with the use of the cathode ray oscillograph by which cortical stimulation may be more accurately controlled for use in the main operating room for patients.

In the operating rooms of the laboratory with the help of the nurse in charge, Miss C. Dart, one hundred and sixty sterile and acute operations were performed during the year together with three hundred and four minor technical procedures.

CHEMICAL LABORATORIES

DR. DONALD MCEACHERN ..... *Biological Chemist.*

The chemical laboratories were opened on February 20th, 1936, for the examination of cerebrospinal fluid from patients in the Institute, in the Neurological Outpatient Department, and patients elsewhere in the hospital who are under the care of staff members of the Institute. Serological reactions and bacteriological work on these fluids continue to be done in the Royal Victoria

Hospital bacteriology laboratory. Routine blood chemistry determinations are carried out, as before, by the medical laboratories of the University Clinic.

The determinations made on cerebrospinal fluids between February 20th and December 31st, 1936, numbered as follows:

Pandy reaction	591
Protein	601
Sugar	35
Chlorides	41
Lange curves	313
Extra	23
Total	1604
Private and semi-private	434
Public	1170

Arrangements have also been made to take over the determinations of basal metabolism on patients in the Institute and this change will be made in the near future. Save for the above determinations, which are dictated by time and convenience, no effort has been made to extend the routine activities of the laboratories which have been planned primarily as research laboratories.

In collaboration with the Department of Physics of McGill University and under a grant from the Rockefeller Foundation, work has continued on the problems of lead absorption in disease of the nervous system. Mr. Joseph Moro has undertaken a study of the effect of lead absorption on rats in various stages of vitamin B deficiency. Work is also in progress on problems relating to myasthenia gravis. In collaboration with Dr. Joseph P. Evans a study is being made of the effect of various vaso-dilating agents following obstruction of cerebral vessels in animals.

ROENTGENOGRAPHIC DEPARTMENT

DR. A. E. CHILDE ..... *Roentgenologist*

Roentgenographic examination of patients	1677
Roentgenographic examination for research purposes	310
Daily average of films exposed	27
Films used	7924
Encephalograms	397
Ventriculograms	87

Myelograms were carried out with oxygen with good visualization of the spinal canal and cord, particularly in the lumbar and thoracic regions. It seems possible that with further experience with this method of examination, considerable information may be obtained. It is hoped that this will supplant lipiodol injections in some cases and also yield information that cannot be obtained in any other manner. The axial examination of the base of the skull, which was introduced in 1935, has proven to be a valuable adjunct to the standard positions and not infrequently has shown changes which could not have been demonstrated otherwise.

OUTPATIENT DEPARTMENT

The 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
New cases	305	172
Re-visits	4100	463
Total visits	4405	635

ADMISSIONS TO HOSPITAL

Admitted directly to Montreal Neurological Institute		877
to Neurology	221	
to Neurosurgery	656	
Admitted directly to Royal Victoria Hospital		108
Total admissions to Department of Neurology and Neurosurgery		985
Transfer of patients between the Montreal Neurological Institute and the Royal Victoria Hospital took place freely so that the total number of patients cared for in the former during the year was		912

The following statistics apply to the 887 cases admitted directly to the Montreal Neurological Institute:

Residents of Montreal	523
Residents outside Montreal	364
	887

Males	510
Females	377
	887

Private patients	130
Semi-private patients	145
Public pay patients	372
Public patients admitted under the Quebec Public Charities Act	240
	887

Total days' treatment	17,667
Average stay	18 days
Daily average of patients	48
Daily average percentage of capacity (based on 50 beds)	96%
Trips made by ambulance	194

Patients transferred to and from other hospitals in the vicinity of Montreal and the Montreal Neurological Institute were also numerous.

	To	From
Children's Memorial Hospital	3	4
Homoeopathic Hospital of Montreal		2
Hopital de la Femme Invalide	2	
Hopital du Sacre Coeur	2	1
Hopital Notre Dame	4	8
Hopital St. Iean de Dieu	1	
Hopital St. Justine		2
Hotel Dieu	3	5
Lachine General Hospital		1
Little's Nursing and Convalescent Home	2	
Montreal Convalescent Home	5	
Montreal General Hospital (Central Division)		12
" " " (Western Division)		3

Sanatorium Prevost	6	
Shriners Hospital for Crippled Children		1
Verdun Protestant Hospital	4	
Women's General Hospital	1	1
	33	40

The following classifications of diseases, operations and deaths are based upon the total number of patients cared for by the Department of Neurology and Neurosurgery in the Montreal Neurological Institute and the Royal Victoria Hospital. This total number of patients was 985.

CLASSIFICATION OF DISEASES

Nervous System Generally:

Neurosyphilis	14
Multiple sclerosis	19
Progressive muscular atrophy	2
Friedreich's ataxia	2
Cerebral arteriosclerosis	5
Encephalomyelitis	1

Meninges:

Chronic adhesive arachnoiditis	6
Meningitis, pneumococcus	4
" streptococcus	3
" staphylococcus	3
" mixed infection	2
" tuberculous	2
Subdural effusion	10
Extradural haemorrhage, traumatic	4
Subdural haemorrahge, traumatic	8
Pachymeningitis haemorrhagica	1
Lateral sinus thrombosis	2
Subarachnoid haemorrhage	10
Subarachnoid haemorrhage, traumatic	39
Subdural adhesions	2
Post-traumatic headache	26
Meningeal cicatrix	2
Laceration of dura	5

Brain:

Extradural abscess	1
Microcephaly	2
Agenesis of cerebellum	2
Agenesis of corpus callosum	3
Cerebral diplegia	1
Cerebral abscess	9
Tuberculoma	4
Encephalitis	3
Cerebral gliosis	3
Encephalitis periaxialis diffusa	2
Cerebral concussion	105
Cerebral contusion and laceration	16
Compression of brain	2
Herniation of brain	2
Cerebral cicatrix	10
Meningo-cerebral cicatrix	13
Chronic encephalopathy	4
Encephalomalacia	2
Porencephaly	2
Cyst of brain	7
Hydrocephalus	6
Arnold-Chiari malformation	1
Paralysis agitans	7
Sydenham's chorea	2
Progressive lenticular degeneration	1
Epilepsy	143
" focal	38
Migraine	8
Cerebral haemorrhage	10
Cerebral thrombosis	10
Cerebral angiospasm	1
Intracranial aneurysm	10
Cerebral atrophy	27
Cerebral degeneration	1
Intracranial calcification	1
Syringobulbia	1

Tumours of Nervous System:

Blood vessel tumours	4
Total gliomas	55

Astroblastoma	3
Astrocytoma	17
Ependymoma	3
Glioblastoma multiforme	22
Glioma—unclassified	7
Spongioblastoma polare	1
Neuroepithelioma	2
Perineurial fibroblastoma	5
Meningeal fibroblastoma	14
Neuroma	3
Pituitary adenoma	9
Craniopharyngeal pouch tumour	2
Dural and extradural sarcoma	6
Cholesteatoma	1
Metastatic carcinoma	1
Metastatic hypernephroma	1
Von Recklinghausen's disease	2
Unclassified tumour	2
Unverified tumour	2
Tumour suspect	22

Spinal Cord:

Spina bifida	18
Acute anterior poliomyelitis	2
Abscess of cauda equina	1
Myelopathy, traumatic	1
Laceration of spinal cord	1
Compression of spinal cord	26
Haematomyelia	5
Thrombosis, anterior spinal artery	1
Atrophy of spinal cord	1
Syringomyelia	2
Primary lateral sclerosis	2
Dorso-lateral sclerosis	4
Charcot-Marie-Tooth atrophy	1

Cranial and Peripheral Nerves:

Retrobulbar neuritis	4
Toxic amblyopia	1
Ocular palsy	1
Trigeminal neuralgia	44
Facial paralysis, peripheral	7

Facial tic	2
Ménière's syndrome	13
Multiple neuritis	8
Hypertrophic interstitial neuritis	1
Sciatic neuritis	1
Neuralgias	14
Trauma to cervical nerve roots	1
Paralysis brachial plexus and branches	6
Compression brachial plexus by cervical rib	2
Paralysis lumbosacral plexus and branches	3

Autonomic Nervous System:

Sympatheticotonia	1
Angioneurotic oedema	1

Mental Diseases:

Mental deficiency	8
Alcohol addiction	9
Drug addiction	1
Psychoneurosis	57
Manic-depressive psychosis	22
Involutional melancholia	1
Dementia praecox	7
Paranoid condition	4
Symptomatic psychosis	7
Miscellaneous	12

Other Systems and Miscellaneous:

Fracture of skull	61
Fracture and/or dislocation vertebral column	23
Other fractures	21
Other dislocations	2
Lacerations, contusions, abrasions and/or haematomas	66
Pseudo-hypertrophic muscular dystrophy	1
Amyotonia congenita	1
Myasthenia gravis	3
Carcinoma	6
Tuberculosis	9
Hodgkin's disease	2
Diseases of cardio-vascular-renal system	37
" " respiratory system	14
" " gastro-intestinal system	19

" " genito-urinary system	16
" " haematopoietic system	5
" " endocrine system	22
" " locomotor and integumentary system	69
" " eyes, ears, nose and throat	49
Specific infectious diseases	5
Tertiary syphilis	4
Alcohol and drug poisoning	2
Miscellaneous	12
Diagnosis deferred	12

CLASSIFICATION OF OPERATIONS

Craniotomy	3
" exploration	15
" decompression	11
" removal of tumour	46
" partial removal of tumour	21
" removal of cyst	1
" elevation of cranium	1
" excision of cicatrix	12
" lobectomy	1
" removal of focus	3
" drainage of abscess	3
" drainage of subarachnoid space	2
" drainage of subdural space	9
" resection of dura	2
" rhizotomy	10
" removal of extradural haemorrhage	2
" removal carbuncle of brain	1
" removal of adhesions	1
" drainage of intracerebral haemorrhage	3
Laminectomy,	
" exploration	4
" decompression	1
" exploration and fusion	2
" removal of tumour	13
" partial removal of tumour	3
" rhizotomy	3
" antero-lateral chordotomy	4
" drainage of abscess	1
" removal of hyperostosis	2
Plastic repair of spina bifida	11

Partial removal cyst of neurenteric canal	1
Trepanation	23
" ventriculography	87
" ventricular puncture	8
" biopsy	6
" exploration and/or drainage subdural space	10
" subdural insufflation	6
" drainage of brain abscess	2
" aspiration of cyst	5
" insertion of wires for traction	5
Encephalography, lumbar puncture	397
Arterial encephalography, injection of thorotrast	14
Preganglionic sympathectomy	1
Sympathetic ganglionectomy	2
Carotid plexectomy	4
" " and ligation external carotid artery	7
Ligation of external carotid artery	12
Splanchnectomy	1
Elevation of depressed skull fracture	13
Fusion of vertebral column by bone graft	3
Debridement and suture of wound	11
Plastic repair of wound	5
Re-elevation of bone flap	3
Re-opening of wound	15
Exploration of skull fracture	1
Drainage osteomyelitis of skull	2
Excision of infected meningocele	1
Section of scalenus anticus muscle	2
Section of scalenus anticus muscle and removal of cervical rib	1
Exploration of brachial plexus and nerve suture	2
Exploration of ulnar nerve, removal of neuroma and nerve suture	1
Nerve anastomosis, hypoglossal — facial	1
Avulsion of nerve	16
Neurolysis	3
Neurectomy	1
Nerve suture	1
Removal of intrathoracic tumour	1
Miscellaneous	26
	891

DEATHS

Deaths	70
Deaths within 48 hours of admission	20
Death rate based upon deaths occuring more than 48 hours after admission	5.18%
Autopsies obtained	58
Percentage of autopsies obtained	82.8%

C. T. LeBlanc M. Howlett A. Hudson M. Reid E. Scott
J. Young G. Gordon D. Fisher M. Fenwick C. Colpitts L. Millette M. MacDonald
C. Lambertus C. MacLeod B. Cameron E. Flanagan H. Eberle L. MacNichol M. Collins
J. Cameron L. Robichaud I. Dickson I. Gillespie

PUBLICATIONS FROM THE MONTREAL NEUROLOGICAL INSTITUTE 1936

Neurological Biographies and Addresses, Foundation Volume, published for the Staff to commemorate the opening of the Montreal Neurological Institute of McGill University (Oxford University Press, London: Humphrey Milford, 1936).

CONTENTS

ADDRESSES AT OPENING CEREMONY

BIOGRAPHICAL SKETCHES

DR. WILDER PENFIELD:

Subtemporal and suboccipital myoplastic craniotomy, (with William Cone). Arch. Neurol. & Psychiat. Vol. 35, 1-11. January 1936, and Canad. M. A. J. 34: 16-21, January 1936.

Operative exposure of the facial canal, (with Edward Tremble). Arch. Otolaryngology, 23: 573-579, May 1936.

Tumour of the brain and useful survival. Arch. Neurol. & Psychiat. 36: 399-401, Aug. 1936.

Wilbur Sprong; Obituary Note. Neurological Biographies & Addresses, Oxford University Press.

Subdural traction and post-traumatic headache; study of pathology and therapeusis, (with N. C. NORCROSS). Arch. Neurol. & Psychiat. 36: 75-94, July 1936.

Epilepsy and Surgical Therapy. Arch. Neurol. & Psychiat. 36: 449-484, September 1936.

Special Fields in Medicine. McGill Medical Undergraduates' Journal, December 1936.

(See also under Elvidge, A.)

DR. WILLIAM CONE:

Spina bifida and cranium bifidum. Textbook of Surgery edited by Dr. Frederick Christopher. Saunders, Philadelphia, 363-374, February 1936.

Gliome de l'aqueduc de Sylvius, (with Jean Saucier). L'Union Médicale du Canada, 65: 450-454, mai 1936.

Graduated jugular compression with manometric tracings of spinal fluid pressure, (with William T. Grant). Arch. Neurol. & Psychiat. 36: 1317-1329, December 1936

(See also under Penfield, W.)

(See also under Elvidge, A.)

DR. ROMA AMYOT:

Etude clinique de la fasciculation physiologique des voies cordonales bulbo médullaires du sympathique tégumentaire. Processus syringomyélique et syndrome de blocage partiel sous-arachnoidien. Bull. de l'Asssn. des Médecins de Langue Française de l'Amérique du Nord. Vol. II, No. 2, 1936.

Sciatique et anomalies de transition lomo-sacrée. L'Union Médicale du Canada, fév. 1936.

Sciatique et sacralisation de la cinquième vertèbre lombaire. L'Union Médicale du Canada, avril 1936.

Trophoèdeme des membres du type meige et troubles vaso-moteurs localisés. Hypothèse pathogénique. Gazette Médicale de France et des Pays de Langue Française. Tome 43: No. 9, 415-424, mai 1936.

Mélano-sarcome du lobe temporo-occipital droit. Atrophie musculaire du membre supérieur gauche. L'Union Médicale du Canada, août 1936.

Lacunes congénitales de la voûte cranienne; les trous pariétaux anormalement très agrandis. L'Union Médicale du Canada, octobre 1936.

Méningite syphilitique aigue. L'Union Médicale du Canada, décembre 1936.

DR. EDWIN B. BOLDREY:

Primary sarcoma of the breast with report of four cases. Canad. M. A. J. 35: 16-21, July 1936.

DR. ARTHUR E. CHILDE:

Oxycephaly with the report of two cases in a brother and sister (with D. Klein). Canad. M.A.J. 34: 397-399, April, 1936.

Mediastinal lymphosarcomas in childhood (with F. W. Wigglesworth and A. Goldbloom). Journ. Pediatrics 9: 331-346, September, 1936.

DR. ARTHUR R. ELVIDGE:

Pathological findings in schizophrenia and manic depressive psychosis as studied by cerebral biopsy, (with George Reed). Trans. American Neurological Association, 1936.

The gliomas of the central nervous system. A study of 210 verified cases, (with Wilder Penfield and William Cone) Proceedings of the Association for Research in Nervous and Mental Diseases. Vol. 16, 1936.

DR. T. C. ERICKSON:

(See under Reeves, D.)

DR. JOSEPH P. EVANS:

Observations on the nerves of supply to the bladder and urethra of the cat, with a study of their action potentials. J. Physiol. 86: 396-414, 1936.

DR. WILLIAM T. GRANT:

(See under Cone, W.)

MR. H. S. HAYDEN:

A new technique for surgical photography in the operating room. The Photographic Journal, Vol. 76, April 1936, p. 205.

DR. N. C. NORCROSS:

(See under Penfield, W.)

DR. J. N. PETERSEN:

Diseases of the Nervous System. Chapter 15 in the Practice of Medicine, by Jonathan Campbell Meakins. The C. V. Mosby Company, 1936, St. Louis.

DR. DAVID L. REEVES:

The selective elimination of neutral red through the gastric mucosa, (with S. Morrison and R. E. Gardner). Journ. of Laboratory and Clinical Medicine, 21: 822-828, 1936.

The surgical treatment of gastric and duodenal ulcers, (with I. R. Trimble). Bull. Johns Hopkins Hosp. 59: 35-59, 1936.

The elimination of various dyes from the Pavlov pouch of dogs, (with S. Morrison and R. E. Gardner). Am. J. Digestive Dis. and Nutrition. 3: 551-557, 1936.

Symposium: Hearing by bone conduction. Brain tumors and hearing, (with W. J. McNally, T. C. Erickson, R. Scott-Moncrieff). Annals of Otology, Rhinology and Laryngology, 45: No. 3,735, September 1936.

DR. JEAN SAUCIER:

Peut-on prévenir la poliomyélite? Bull. de l'Assn. Internationale de Pédiatrie Préventive, 3: No. 12, 1936.

Varicelle compliquée d'hypertension intracranienne aver syndrome cérébelleux. Intervention. Guérison. L'Union Médicale du Canada, mars 1936.

Où en est la thérapeutique de la poliomyélite. L'Union Médicale du Canada, novembre 1936.

(See also under Cone, W.)

DR. EXUM WALKER:

Avertin and encephalography, (with John E. Scarff). J. Nerv. and Ment. Dis. 83: 661-670, June 1936.

The following gifts and donations received during 1936 are gratefully acknowledged:

From Dr. Howard Means, Boston, Mass.
A fellowship for the study of headache $1,000.00

From Mrs. Howard Means, Boston, Mass.
To the Transfusion and Clinical Relief Fund. 1,000.00

To a special Physics Fund for the study of cerebral circulation in epilepsy, the following donations have been made:

Mr. G. H. Duggan	500.00
Mrs. A. A. Hodgson	1,000.00
Sir Herbert Holt	3,000.00
Mr. J. W. McConnell	2,250.00
Mrs. Lewis Reford	1,000.00

Respectfully submitted,

J. N. Petersen, *M.D.*,

Registrar.