

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

ROMA AMYOT, B.A., M.D. (Paris)
Associate Consulting Neurologist

E. C. BROOKS, L.R.C.P. and S. (Edin.)
Consulting Roentgenologist.

A. E. CHILDE, M.D.
Roentgenologist.

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

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

JOSEPH P. EVANS, B.A., M.Sc., M.D.
Asistant Neurosurgeon.

HADDOW M. KEITH, M.B. (Tor.)
Assistant Registrar, Assistant Neurologist.

EMILE LEGRAND, M.D., Médecin Légiste (Paris)
Associate Consulting Neurologist.

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

DONALD McEACHERN, M.D.
Associate Neurologist, Biological Chemist.

FRANCIS L. McNAUGHTON, B.A., M.D., C.M.
Clinical Assistant.

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

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

J. NORMAN PETERSEN, B.Sc., M.D., C.M.
Registrar. Associate Neurologist.

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

JEAN SAUCIER, B.A., M.D., (Paris), M.D. (Montreal)
Associate Consulting Neurologist.

Other Hospital Associations

Notre Dame Hospital
Verdun General Hospital
Sanatorium Prevost

Royal Victoria Hospital
Montreal Children's Hospital

Children's Memorial Hospital
Montreal Children's Hospital

Royal Victoria Hospital
Montreal General Hospital
Children's Memorial Hospital
Women's General Hospital
Homoeopathic Hospital

Royal Victoria Hospital
Montreal General Hospital
Montreal Children's Hospital
Verdun Protestant Hospital

Royal Victoria Hospital

Children's Memorial Hospital
Montreal Children's Hospital
Women's General Hospital

Hotel Dieu
St. Jean de Dieu.

Montreal General Hospital
Children's Memorial Hospital
Shriners Hospital
Military Hospital, Ste. Anne
de Bellevue
Mental Hygiene Institute.

Royal Victoria Hospital

Montreal General Hospital.

Royal Victoria Hospital
Lovat Hall, Lancaster, Ont.

Royal Victoria Hospital
Montreal General Hospital
Children's Memorial Hospital
Jewish General Hospital
Verdun Protestant Hospital

Royal Victoria Hospital
St. Mary's Hospital
Mental Hygiene Institute.

Royal Victoria Hospital
Children's Memorial Hospital
Mental Hygiene Institute.

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

<i>Professor of Neurology and Neurosurgery</i>	WILDER PENFIELD.
<i>Clinical Professors of Neurology</i>	F. H. MACKAY. C. K. RUSSEL.
<i>Assistant Professor of Neurology and Neurosurgery</i>	WILLIAM CONE.
<i>Lecturers in Neurology</i>	DONALD McEACHERN J. N. PETERSEN N. VINER A. W. YOUNG.
<i>Lecturer in Neurosurgery</i>	A. R. ELVIDGE.
<i>Demonstrator in Paediatric Neurology</i>	H. M. KEITH.
<i>Demonstrator in Roentgenology</i>	A. E. CHILDE.
<i>Assistant Demonstrator in Neurosurgery</i>	T. C. ERICKSON.
<i>Assistant Demonstrator in Neuropathology</i>	W. T. GRANT.
<i>Assistant Demonstrator in Neurophysiology</i>	J. P. EVANS.

UNIVERSITY OF MONTREAL

<i>Professeur Agrégé of Neurology</i>	EMILE LEGRAND.
<i>Assistant Professor of Neurology</i>	ROMA AMYOT. JEAN SAUCIER.

NURSING STAFF

<i>Supervisor:</i>	MISS EILEEN C. FLANAGAN, B.A., R.N.
<i>Assistant Supervisor and Ward Teacher:</i>	MISS HELEN M. EBERLE, R.N.
<i>Night Supervisor:</i>	MISS BERTHA CAMERON, R.N.
<i>Assistant Night Supervisor:</i>	MISS MAY COLLINS, R.N.
<i>Operating Room Supervisor:</i>	MISS KATHLEEN ZWICKER, R.N.
<i>Assistant Operating Room Supervisor:</i>	MISS CORA MACLEOD, R.N.
<i>Head Nurses:</i>	MISS LORRAINE MACNICHOL, R.N. MISS CONSTANCE LAMBERTUS, R.N. MISS MARGARET GOLDIE, R.N.
<i>General Duty, Operating Room:</i>	MISS EILEEN KELLY, B.Sc., R.N.
<i>Night General Duty, Operating Room:</i>	MISS LUCY MILLETTE, R.N.
<i>General Duty, Floors:</i>	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	<i>Half-time, Neuropathology.</i>
“ I. MEAGHER	<i>X-ray and Administration.</i>
“ H. O'MARA	<i>Records.</i>
“ W. SMITH	<i>Neuropathology.</i>

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. 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.

Robertson



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 colloquium 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 internship 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 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 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 externship 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 Internships, Fellowships and Externships 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 pathological 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
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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
	<hr/> 887
Private patients	130
Semi-private patients	145
Public pay patients	372
Public patients admitted under the Quebec Public Charities Act	240
	<hr/> 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. Jean 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
	<hr/> 33	<hr/> 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 haemorrhage, 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
Involucional 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
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DEATHS

Deaths	70
Deaths within 48 hours of admission	20
Death rate based upon deaths occurring 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. Milette 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).

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Foreword. E. W. Archibald.
Chairman's Remarks. C. F. Martin.

ADDRESSES AT OPENING CEREMONY

Foundation Lecture — Neurology. Gordon Holmes.
Foundation Lecture — Neurosurgery. Harvey Cushing.
The Significance of the Montreal Neurological Institute. Wilder Penfield.

BIOGRAPHICAL SKETCHES

JOHN HUGHLINGS JACKSON.	DONALD McEACHERN.
SIR VICTOR HORSLEY.	JOSEPH P. EVANS.
SIR CHARLES SHERRINGTON.	ARTHUR ELVIDGE AND WILDER PENFIELD.
JEAN MARTIN CHARCOT.	FRED H. MACKAY AND EMILE LEGRAND.
CLAUDE BERNARD.	J. N. PETERSEN AND JEAN SAUCIER.
FRANZ NISSL AND ALOIS ALZHEIMER.	ARTHUR YOUNG.
WILHELM HEINRICH ERB.	ARNE TORKILDSEN AND T. C. ERICKSON.
IVAN PETROVITCH PAVLOV.	GEORGE STAVRAKY.
CONSTANTIN VON MONAKOW.	COLIN K. RUSSEL.
CAMILLO GOLGI.	JERZY CHOROBSKI.
SANTIAGO RÁMON Y CAJAL.	WILBUR SPRONG.
SILAS WEIR MITCHELL.	OLAN HYNDMAN AND WILLIAM V. CONE.
HARVEY CUSHING.	HAROLD ELLIOTT, LYLE GAGE AND WILDER PENFIELD.

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DR. EXUM WALKER:

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MR. G. H. DUGGAN	500.00
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MRS. A. A. HODGSON	1,000.00
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SIR HERBERT HOLT	3,000.00
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MR. J. W. McCONNELL	2,250.00
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MRS. LEWIS REFORD	1,000.00
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Respectfully submitted,

J. N. PETERSEN, M.D.,

Registrar.