

## International Memory of the World Register

### The Discovery of Insulin and its Worldwide Impact (Canada)

2012-12

#### 1.0 Summary (max 200 words)

The documentary heritage being nominated is the total archive pertaining to the discovery of insulin at the University of Toronto. This event was one of the most significant medical discoveries of the twentieth century and it is thoroughly documented in the archive, in a number of related fonds. The discovery of insulin archival collections contain original handwritten notes by the scientific team of Frederick Grant Banting (1891-1941), Charles Herbert Best (1899-1978), James Bertram Collip (1892-1965) and John James Rickard Macleod (1876-1935) concerning early experiments, and the successful formula for insulin, as well as patient charts, papers, reports, correspondence between doctors, researchers, patients' response, the Eli Lilly company and the University of Toronto. Research and teaching in the Faculty of Medicine has always been strong at the University of Toronto, with a long and distinguished history and those familiar with this tradition are not surprised by the discovery of insulin here. While credit for the discovery must be officially given to Banting, Best, Collip and Macleod, their work was based on a solid foundation of research performed by a number of world-class researchers at the University of Toronto, as well as building on research being carried out by others around the world.

While Dr. Banting had little experience in medical research at the time, Dr. Macleod recognized that the exact procedures which Dr. Banting suggested had never been tried before to his knowledge, and also felt that even negative results would be of value to diabetic research. Dr. Macleod had the resources to support Dr. Banting in these initial researches and was willing to take a chance on new ideas. While there have been many discoveries since at the University of Toronto, few can match the discovery of insulin in overall significance, and which most effectively prove the value of supporting new ideas in research-- the results of which are unknown.

The Thomas Fisher Rare Book Library has deliberately collected the most comprehensive group of archival collections related to the discovery of insulin in the world. The research of the co-discoverers may be examined in accurate, original detail through the archival collections and website. This is unusual in that so much related material is collected in one institution, and that it survives intact in the original. The website makes the archival material central to the discovery of insulin freely available to the widest possible audience in the world.

The discovery of insulin collections are of incalculable value to the world community. The discovery of insulin has meant the difference between life and death for those suffering from diabetes. Insulin also provides a vastly improved quality of life for those suffering from the disease. For diabetics, their families and friends, researchers, doctors, clinicians, historians, writers, filmmakers and many others this material is of the utmost importance. Diabetics consult this material for inspiration and support of their condition, through reading early patient letters and charts, Dr. Banting's scrapbooks, photographs and many other records. This material provides comfort especially for children and their parents. New doctors specializing in the field of diabetes have consulted this material for inspiration. Doctors currently in practice are challenged and inspired by these archival documents. There has been no comparable new advance in the field of diabetes since the discovery of insulin. Given the present worldwide diabetes epidemic this material remains of vital importance. Data from the World Health Organization, as of August 2011, states that 346 million people worldwide have diabetes, and that approximately 3.4 million people died from elevated blood glucose levels in 2004 alone. More than 80% of deaths from diabetes occur in low and middle income countries, with India having an estimated 50.8 million people living with diabetes, the world's largest diabetes population, followed by China with 43.2 million people. The World Health Organization

projects that between 2005 and 2030 deaths from diabetes will double. Undiagnosed diabetes accounted for 85% of those with diabetes in studies from South Africa, 80% in Cameroon, 70% in Ghana and over 80% in Tanzania. The number of deaths attributable to diabetes in 2010 shows a 5.5% increase over the estimates for the year 2007. This increase is largely due to a 29% increase in the number of deaths due to diabetes in the North America & Caribbean Region, a 12% increase in the South East Asia Region and an 11% increase in the Western Pacific Region. Insulin is recognized as an essential treatment by its inclusion in the World Health Organization's Essential Medicines List, though insulin is still not available on an uninterrupted basis in many parts of the developing world.

Previous to the discovery of insulin, diabetics were put on starvation diets, and the majority died from the disease, as well as from gangrene infections and other complications due to the disease. Diabetes is one of the major causes of blindness. Early diagnoses and treatment can prevent diabetic blindness, however there are currently issues in low and middle income communities regarding timely and effective access to diagnosis and treatment. This discovery underscores the importance of supporting ongoing medical research at universities, clinics and hospitals around the world.

Dr. Banting and Dr. Macleod were awarded the Nobel Prize for Medicine in 1923 for the discovery of insulin, and both shared prize money and credit with their co-discoverers, James Collip and Charles Best.

This discovery has saved the lives of many millions of people around the world and continues to do so.

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## **2.1 Name of nominator (person or organization)**

Thomas Fisher Rare Book Library, University of Toronto

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## **2.2 Relationship to the nominated documentary heritage**

Custodians/ legal owners of the discovery of insulin collections

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## **2.3 Contact person(s) (to provide information on nomination)**

Anne Dondertman, Acting Director  
Jennifer Toews, Manuscripts Librarian

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## **2.4 Contact details**

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### **3.0 Identity and description of the documentary heritage**

#### **3.1 Name and identification details of the items being nominated**

**If inscribed, the exact title and institution(s) to appear on the certificate should be given**

The Discovery of Insulin collections at the Thomas Fisher Rare Book Library, University of Toronto, which include portions of:

#### **Sir Frederick Grant Banting papers, Thomas Fisher Rare Book Library**

Including material from the following series:

Correspondence, 1908-1941  
Research Notebooks and Papers, 1914-1940  
Insulin Research Materials, 1921-1938  
Suprarenal Research Materials, 1923-1929  
Diaries and Journals, etc., 1915-1941  
Writings (Scientific and Literary) by FGB, 1920-1940  
Other Writings by FGB  
Writings Collected by FGB (Not Written by Him)  
Posthumous Tributes (Unpublished), 1941-1943  
Scrapbooks, 1890s-1941  
Chronological Files of Printed Biographical Materials  
Photographs  
Original Films and Recordings  
Videotapes  
Radio and Film Scripts  
Biographical Extracts  
Honours  
Howard Banting Papers  
Exhibition Materials on Discovery of Insulin  
Canadian Diabetes Association Material  
Ted Ryder Scrapbook

#### **Charles Herbert Best papers, Thomas Fisher Rare Book Library**

Including material from the following series:

Correspondence  
Research  
Banting and Best Department of Medical Research  
Biographical Material  
Photographs, Films, Slides, Records, Tapes, Cassettes  
Windeyer Best papers  
Dr. Best's Slide Collection Relating to the History of Diabetes and the Discovery of Insulin  
Henry Best 2003 Accession

#### **James Bertram Collip papers, Thomas Fisher Rare Book Library**

Including material from the following series:

Scrapbooks, 1892-1966

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Guest Book, 1947-1963  
Printed Materials, 1913-1957  
Photographs, Pictures (Not in Scrapbooks)  
Honours  
Medals, Awards, Pins  
1995 Accession, correspondence and personal

**Sadie Gairns papers, Thomas Fisher Rare Book Library**

All material in this 1 box, including photographs, print and other material

**William Feasby papers, Thomas Fisher Rare Book Library**

Including material from the following series:  
Charles H. Best Biography, 1921-1978  
History of the Faculty of Medicine, University of Toronto, 1911-1969  
Other Writings, ca. 1933-1970  
Biographical and Autobiographical material  
Additional Material for History of the Faculty of Medicine, 1843-1966  
Correspondence, Research material, drafts  
Typescripts of Manuscripts

**Elizabeth Hughes papers, Thomas Fisher Rare Book Library**

Including material from the following series:  
Correspondence  
Biographical Materials (Printed)  
Photographs  
Medals

**Academy of Medicine papers, Thomas Fisher Rare Book Library**

Includes material from the following series:  
Printed Materials  
Manuscript Materials

**John James Rickard Macleod papers held within Charles Herbert Best papers, Thomas Fisher Rare Book Library**

Boxes 51-52 with the Charles Herbert Best papers

**Archives and Records Management Services, University of Toronto collections:**

**University of Toronto, Board of Governors, Insulin Committee**

Includes all material, fonds are organised by accession. Includes correspondence, patents, agreements and licenses, account books, royalties, insulin distribution information, Advisory Committee minutes and original Insulin Committee minutes (1922-1959).

**University of Toronto, Office of the President**

Fonds are organised by accession.  
Includes material from the series:

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Correspondence (individual and subject) files (1906-1932)  
Working Files for the Annual President's Report (1910-1921)

The Discovery and Early Development of Insulin, 1920-1925 at the University of Toronto website brings together the archival documents most relevant to the time of the discovery from a range of sources including from the papers of the co-discoverers and assistant (Sadie Gairns), patients (Elizabeth Hughes and Ted Ryder), medical historian and doctor William Feasby, as well as the official records of the university related to the production and distribution of insulin. All of this material together provides a full, contemporary picture of the events and people involved in the discovery of insulin at the University of Toronto.

*In this part of the form you must describe the document or collection in sufficient detail to make clear precisely what you are nominating. Any collection must be finite (with beginning and end dates) and closed.*

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### **3.2 Catalogue or registration details**

*Depending on what is being nominated, appending a catalogue can be a useful way of defining a collection. If this is too bulky or impractical, a comprehensive description accompanied by sample catalogue entries, accession or registration numbers or other ways of defining a collection's size and character can be used.*

Much of the earliest material pertaining to the discovery of insulin has been digitized and made available on this website: <http://link.library.utoronto.ca/insulin/>

The Discovery and Early Development of Insulin website contains 7000 page images and draws on material from the following collections:

Sir Frederick Grant Banting papers, 1908-1998, 69 boxes and items, 11 metres, Manuscript Collection 76. Material pertaining to the discovery of insulin from this collection includes original archival notes, letters, photographs, reports, experiments, patient charts, glass slides, scrapbooks.

Sir Frederick Grant Banting(1891-1941) was born on an Ontario farm and eventually became one of the co-discoverers of insulin at the University of Toronto, winning the 1923 Nobel Prize with Dr. Macleod. He completed his medical degree at the University of Toronto in 1916 and served in World War I as a medical officer in France where he was wounded in action and decorated for valour. Following the war he completed his training as an Orthopedic surgeon, then worked as a physician with his own practice. He was drawn to the University of Toronto to do research at the Faculty of Medicine on diabetes. In his own words, "I was not a brilliant student, but I had boundless curiosity and I worked very hard. I remember one day walking home from school and witnessing a terrible accident: two men working on the roof of a house crashed to the ground when the scaffolding collapsed. I ran to fetch the doctor and I stayed and watched with rapt attention as he dressed their wounds and set broken bones. I decided then and there to become a doctor. I think the death of Jane also influenced my life. She was a childhood friend who suddenly, at the age of 14, began to wither away. She had diabetes, and there was nothing we could do to stop her pointless death. As I helped to carry her coffin to its final resting place I asked myself how it could be that no doctor had found a cure for such a horrible disease. I never imagined that I would be the one to discover insulin." Shortly before his untimely death as a result of a plane crash in 1941, he was working with the British government on research related to wartime activities.

Online finding aid: <http://www.library.utoronto.ca/fisher/collections/findaids/banting.pdf>

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Charles Herbert Best papers, 1928-1985, 162 boxes and items, 23 metres  
Manuscript Collection 241. Material pertaining to the discovery of insulin from this collection includes correspondence, research notes and articles, offprints of his published research and of his colleagues including Banting and Macleod, his other writings and lectures, biographical material, photographs, films, slides, records, tapes, and cassettes.

Charles Herbert Best (1899-1978) was a summer student who had just completed his degree in Physiology and Chemistry and who was eager to work as a research assistant in the labs of the Faculty of Medicine, University of Toronto with Dr. Banting on the problem of diabetes.

Charles Best performed a number of the chemical tests during the exploration previous to the discovery of insulin. He had not even begun his formal medical studies at the time of the discovery of insulin. Following the discovery his name would lifelong be connected with Dr. Banting as a co-discoverer of insulin—every research student's dream. Dr. Best went on to complete his medical studies and enjoyed a distinguished career as a physiologist and professor at the University of Toronto. He was co-director with Dr. Banting of the Banting and Best Institute of Medical Research at the University of Toronto, established after the discovery, and later went on to isolate the anti-coagulant known as heparin.

The Charles Best Institute was later founded in his honour, where important medical discoveries continued to be made.

Online finding aid: <http://www.library.utoronto.ca/fisher/collections/findaids/best241.pdf>

James Bertram Collip papers, 1898-1976, 14 scrapbooks; 20 books; 3 boxes (2 metres)

Manuscript Collection 269. Material pertaining to the discovery of insulin from this collection includes a collection of scrapbooks, bound volumes of offprints, and texts related to James Bertram Collip's research career in biochemistry and endocrinology. Dr. Collip (1892-1965) was co-discoverer of insulin; professor of biochemistry at the University of Alberta; Head of the Department of Biochemistry, Director of the Institute of Endocrinology at McGill University; and Dean of the Faculty of Medicine, and Head of the Department of Medical Research at the University of Western Ontario.

Online finding aid: <http://www.library.utoronto.ca/fisher/collections/findaids/collip269.pdf>

Elizabeth Hughes papers, 1907-1995, 3 boxes (53 letters, 22 photos, 1 medal), .5 metres  
Manuscript Collection 334. Material pertaining to the discovery of insulin from this collection includes letters written by Elizabeth Hughes (1907-1981) to her mother, Antoinette (Mrs. Charles E.) Hughes, describing her activities and giving information about her health and diabetic condition. Letters dating from August to November 1922 describe Elizabeth's experiences in Toronto where she was treated with insulin by F.G. Banting. Collection includes one letter written by Elizabeth's nurse, Blanche Burgess, enclosing a letter from Dr. F.M. Allen. 1921-1923. 53 letters.

Papers also include 22 photographs of Elizabeth Hughes and her family, dating from 1907 to 1951, and a commemorative medal struck by the Eli Lilly Company in 1995.

Elizabeth Hughes Gossett (1907-1981) was the daughter of United States Secretary of State, Charles Evans Hughes, and one of the earliest patients to receive insulin. Elizabeth Hughes developed diabetes at the age of 11. She was first treated by Dr. Frederick Allen at his private clinic, the Psychiatric Institute, in New Jersey. Typically, diabetics were put on a strict and severe starvation diet.

By the age of 14 she weighed 52 pounds and her health was very poor. Her parents contacted Dr. Banting to ask that he take Elizabeth on as a patient. Elizabeth came to Toronto in 1922 and began receiving insulin. Her letters are full of descriptive details of her diet and treatment, and her happiness at her improved health. Elizabeth Hughes went on to live a mostly normal life, marrying and having several children. She kept her diabetes secret from nearly everyone she knew. She destroyed many of the documents which referred to her disease and had any reference to her condition removed from her father's papers, which are held by the manuscript division of the Library of Congress. There was some perception at the

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time that diabetes was a shameful disease. The Hughes papers are all the more important because of this. The Hughes Gossett Awards of the Supreme Court Historical Society are named in her honour, of which she is the founder. The Medal Insulin Cymru / Welsh Insulin Medal has an effigy of Elizabeth Hughes on the verso with the inscription: "Elizabeth Evans Hughes, 1907-1981, one of the first children to be treated with insulin in 1922." The medal was created by the Eli Lilly Company for presentation to Welsh diabetics who had lived with the aid of insulin for fifty years or more. Elizabeth Hughes lived to be 73 years old.

Online finding aid: <http://www.library.utoronto.ca/fisher/collections/findaids/hughes334.pdf>

William R. Feasby papers, 1911-1970, 13 boxes (1.5 metres)

Manuscript Collection 235. Material pertaining to the discovery of insulin from this collection includes research materials and drafts for an unpublished biography of C.H. Best, containing much direct comment and dictation by Best; research materials and typescript of an unpublished history of the Faculty of Medicine, University of Toronto; drafts and notes for various articles and speeches; some biographical and autobiographical material.

Dr. William R. Feasby (1912-1970) was born in Listowel, Ontario, and completed his medical education at the University of Toronto in the 1930s. He served overseas during World War II and was invalided home from England to receive treatment for a disease of the cornea. He later joined the Army Research Team in Ottawa, specializing in respiratory diseases. During the 1940s he became a specialist in Internal Medicine in Toronto and also became the editor of *Modern Medicine of Canada* and *Ontario Medical Review*. He was appointed Army Medical Historian in 1945 and later began working on volumes 1 and 2 of the *Official History of the Canadian Medical Services*. During the 1960s he began work on a biography of Charles Best, but due to poor health and his eventual death this project was never completed.

Online finding aid: <http://www.library.utoronto.ca/fisher/collections/findaids/feasby.pdf>

Sadie Gairns papers, 1917-1972, 1 box

Manuscript Collection 242. Material pertaining to the discovery of insulin from this collection includes photographs, offprints, clippings, memorabilia, and some correspondence, chiefly relating to F.G. Banting and to Sadie Gairns' work as his assistant in the Department of Medical Research of the Banting Institute and some personal memorabilia.

Sadie Gairns worked as Dr. Banting's assistant in the Department of Medical Research in the Banting Institute. She graduated with a B.A. in Household Science from the University of Toronto in 1919. She studied with Dr. Macleod and received her M.A. in Physiology in 1922. She was hired as Dr. Banting's research assistant in 1922 with whom she worked closely for the next 19 years. She was largely responsible for the running of the Department of Medical Research, Banting Institute. Her work also played an important part in the discovery of insulin, though she would never receive any official credit. She was also responsible for compiling the comprehensive scrapbooks of Dr. Banting's related to his life and work. She resigned from the department following Dr. Banting's death in 1941 and later died in 1986 at the age of 90.

Online finding aid: <http://www.library.utoronto.ca/fisher/collections/findaids/gairns.pdf>

The John James Rickard Macleod papers are held within Charles Herbert Best papers, 2 boxes

Manuscript Collection 241, boxes 51-52. Material pertaining to the discovery of insulin from this collection includes correspondence and notes on insulin research, 1919-1935.

Dr. John James Rickard Macleod (1876-1935) was a physician and physiologist, originally from Scotland. Dr. Macleod was considered one of the world's leading physiologists and was known for his work in carbohydrate metabolism, in particular. He was elected Chairman and Professor of the Department of Physiology at the University of Toronto in 1918. He was awarded the Nobel Prize for Medicine in 1923, along with Dr. Banting for the discovery of insulin. Dr. Macleod's role in the discovery is disputed by some, though much credit is given to

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his research plan and ongoing practical suggestions as being instrumental in facilitating the discovery of insulin. Dr. Macleod shared his Nobel Prize money with James Collip, whereas Banting did the same with Charles Best, also requesting public recognition of Best's work on the discovery. Macleod was the author of eleven books and numerous articles and lectures, and was well respected in the field. Dr. Macleod left the University of Toronto in 1928 to return to the University of Aberdeen, Scotland, where he was appointed Regius Professor of Physiology until his death in 1935.

Academy of Medicine papers, 181.5 metres + 22 drawers of index cards,

This collection consists of material from the Academy of Medicine, Toronto. The Academy of Medicine was a professional and social organisation for medical doctors founded in the 19th century. The Academy published its own journal, Bulletin of the Academy of Medicine, as well as speeches, articles, essays and other work by Academy members writing on medical and non-medical subjects. The collection includes offprints, biographical files, bound manuscripts, periodicals, bookplates, personal papers, and other material. Only a small portion of the items from this collection pertain to the discovery of insulin, including material used in the Discovery and Development of Insulin website which was selected from Biographical files, Osler reprints, Publications of Members of the Academy and Manuscripts.

Academy of Medicine Digitized Items:

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#### Ephemera

- [Invitation to banquet held in honour of F. G. Banting and J. J. R. Macleod](#)
- [Invitation to a special convocation 26/11/1923](#)

#### Letters

- [Letter to Dr. F. G. Banting 11/03/1921](#)

#### Notebooks

- [Loose leaf notebook, 1920/21](#)
- [Note dated Oct 31/20 from loose leaf notebook 1920/21](#)
- [Notes dated May 17 from loose leaf notebook 1920/21](#)
- [Notes dated June 6/21 from loose leaf notebook 1920/21](#)
- [Notes dated June 9 from loose leaf notebook 1920/21](#)
- [Notes dated June 14 from loose leaf notebook 1920/21](#)

#### Published Works

- [The physiology of insulin and its source in the animal body: Nobel lecture delivered at Stockholm on May 26th 1925](#)
  - [Cameron prize lectures on the nature of control of the metabolism of carbohydrates in the animal body](#)
  - [The sugar of the blood](#)
  - [Insulin and diabetes: a general statement of the physiological and therapeutic effects of insulin](#)
  - [James Bertram Collip 1892-1965](#)
  - [Early clinical experiences with insulin](#)
  - [Anabasis](#)
  - [The effect of insulin on the metabolism of normal dogs](#)
  - [The influence of insulin on glycogen formation in normal animals](#)
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- [The effect on the blood sugar of fish of various conditions including removal of the principal islets \(isletectomy\)](#)
  - [Insulin](#)
  - [The physiologic functions of insulin](#)
  - [The physiological assay of insulin based on its effects on the hyperglycemia following glucose injections and epinephrin](#)
  - [Insulin and glycolysis](#)
  - [Observations on the physiological assay of insulin](#)
  - [The influence of the nutritional condition of the animal on the hypoglycaemia produced by insulin](#)
  - [The possible control of the internal secretion of insulin by the vagus nerve](#)
  - [The influence of insulin on the glycogen content of the liver during hyperglycaemia](#)
  - [The effect of insulin on phloridzin diabetes in dogs](#)
  - [The effect of insulin on the respiratory exchange of normal animals](#)
  - [The first clinical trials of insulin](#)
  - [Chemical evidence for the presence of glycogen-like polysaccharide in the liver blood of diabetic animals](#)
  - [Various forms of experimental diabetes and their significance for diabetes mellitus](#)
  - [Observations on cerebellar stimulations](#)
  - [Insulin \(insulin - Toronto\)](#)
  - [The physiologic functions of insulin](#)
  - [The islands of Langerhans in elasmobranch and teleostean fishes](#)
  - [Does insulin influence the glycogenic function of the perfused liver of the turtle?](#)
  - [The glucose equivalent of insulin in depancreated dogs](#)
  - [The yield of insulin from fish](#)
  - [The sugar of arterial and venous blood during the action of insulin](#)
  - [Dietetics in the treatment of the diabetic patient](#)
  - [Insulin from fish](#)
  - [Glycosuria, the symptom](#)

University of Toronto, Board of Governors, Insulin Committee, 1923-1973, 10.42 metres.

Only a small portion of the items from this collection pertain to the discovery of insulin. The pertinent records are those of the Insulin Committee of the Board of Governors at the University of Toronto. The Insulin Committee was the administrative body set up by the Board of Governors of the University of Toronto to administer the patents and undertake the licensing arrangements for the manufacture of insulin worldwide. Includes records of assays of international standards and other preparations conducted in the Insulin Committee laboratories between 1923 and 1939, many of them by Mr. A. C. Lacey; quarterly statements of royalties paid to the University of Toronto through the Insulin Committee by insulin licensees in the United States for the period 1923-1951; twelve account books from the Insulin Committee containing names of parties to whom the supplies of insulin were shipped; administrative files relating to enquiries for supplies of insulin from the United States, other foreign countries and Canadian provinces; patent files; agreements and licenses for the production of insulin and assay reports. Also includes files relating to the Advisory Committee to the Insulin Committee (1924-1954) and original minutes of the Insulin Committee (1922-1959).

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Insulin Committee Digitized Items:

Clippings

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- [May cure diabetes](#)
  - [Diabetes, dreaded disease, yields to new gland cure](#)
  - [Insulin: a new factor in the treatment of diabetes](#)
  - [New treatment for diabetes attains remarkable results](#)
  - [New diabetes treatment. Canada's gift. Insulin patent for Britian.](#)
  - [A medical discovery](#)
  - [Insulin and diabetes](#)
  - [Insulin and diabetes in India](#)
  - [Discovery of extract that has power to restore capacity lost in diabetes is made public by Dr. John R. Murlin](#)

#### Ephemera

- [Series of advertisements for Insulin - Boots](#)
- [Statement issued by the Boots Pure Drug Company on Boots brand insulin](#)
- [Label for A. B. Brand insulin](#)
- [Leaflet describing A. B. Brand insulin](#)
- [Advertisement for A B Brand insulin](#)
- [Advertisement for A B Brand insulin - export market](#)
- [Entero cap insulin from the islands of Langerhans of the pancreas](#)
- [Advertisement for insulans](#)

#### Legal

- [United States patent no. 1,027,790: pancreas preparation suitable for the treatment of diabetes](#)
- [Application for United States patent no. 1,027,790: pancreas preparation suitable for the treatment of diabetes](#)
- [Printed copy of the licenses to manufacture insulin in the United States and its dependencies](#)
- [Agreement between the Governors of the University of Toronto and James Bertram Collip](#)
- [Foreign export license: agreement between the Governors of the University of Toronto and Evans Sons Lescher & Webb](#)
- [Foreign export license: agreement between the Governors of the University of Toronto and E. R. Squibb and Sons](#)
- [Licenses to manufacture insulin in the United States and its dependencies: agreement between the Governors of the University of Toronto and Eli Lilly and company 30/06/1923](#)
- [Licenses to manufacture insulin in the United States and its dependencies: agreement between the Governors of the University of Toronto and Eli Lilly and company 1/12/1923](#)
- [Foreign export license: agreement between the Governors of the University of Toronto and Eli Lilly and company 31/12/1923](#)
- [United States patent no. 1,470,024: method of preparation of an extract, obtainable from the mammalian pancreas or from the related glands of fishes, useful in the treatment of diabetes mellitus](#)
- [United States patent no. 1,469,994; patented Oct. 9, 1923 ... Extract obtainable from the mammalian pancreas or from the related glands in fishes, useful in the treatment of diabetes mellitus, and a method of preparing it](#)
- [Specification forming part of letter of patent No. 691, 681: aseptic preparation from pancreas and process of producing same](#)

#### Letters

- [Copy of a letter to J. J. R. Macleod regarding a patent for an anti-diabetic agent 25/09/1922](#)
  - [Letter to F. Lorne Hutchison with statements of Iletin sales for the last quarter of 1924](#)
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- [Letter to F. Lorne Hutchison 15/02/1924](#)
  - [Letter offering F. L. Hutchison the position of Executive Secretary for the Insulin Committee 28/06/1923](#)
  - [Letter to Dr. Fitzgerald regarding patent rights for Great Britain 4/07/1922](#)
  - [Letter to Sir Walter Fletcher 17/01/1923](#)
  - [Letter to Macleod regarding the distribution of insulin in Europe 19/02/1923](#)
  - [Letter to the Insulin Committee 11/10/1923](#)
  - [Letter to the Insulin Committee 28/04/1923](#)
  - [Letter to Sir Walter Fletcher 23/11/1923](#)
  - [Letter to Macleod 17/12/1923](#)
  - [Letter forwarded to the Insulin Committee from Dr. A. McPhedron 29/11/1922](#)
  - [Letter to the Insulin Committee 19/12/1922](#)
  - [Letter to the Insulin Committee 29/04/1923](#)
  - [Letter to the Insulin Committee 12/05/1923](#)
  - [Letter to the Insulin Committee 24/05/1923](#)
  - [Letter forwarded to the Insulin Committee by R. Defries 20/03/1923](#)
  - [Letter to the Insulin Committee 3/03/1923](#)
  - [Letter to the Insulin Committee 25/02/1923](#)
  - [Letter forwarded to the Insulin Committee from the Connaught Laboratories ca. 01/1923](#)
  - [Letter to Lorne Hutchison 11/09/1923](#)
  - [Letter to Dr. Macleod 10/05/1922](#)
  - [Letter to Dr. R. T. Woodyatt 21/06/1922](#)
  - [Letter to R. T. Woodyatt 7/09/1922](#)
  - [Letter to Dr. Macleod 4/10/1922](#)
  - [Letter to Charles H. Riches 17/10/1925](#)
  - [Letter to the Insulin Committee 8/01/1926](#)
  - [Letter to Dr. Clowes 3/01/1923](#)
  - [Letter to Dr. J. J. R. Macleod 7/03/1923](#)
  - [Letter to Dr. J. J. R. Macleod 14/03/1923](#)
  - [Letter to Dr. J. J. R. Macleod 29/05/1923](#)
  - [Letter to Dr. F. M. Allen 29/11/1922](#)
  - [Letter to Professor Macleod 23/10/1922](#)
  - [Letter to Dr. J. G. Fitzgerald 5/07/1923](#)
  - [Letter to Dr Macleod 15/06/1922](#)
  - [Letter to Dr. W. D. Sansum 21/06/1922](#)
  - [Letter to Dr Macleod 21/07/1922](#)
  - [Letter to Dr. F. G. Banting 9/08/1922](#)
  - [Letter to Mr. Chas. H. Riches 7/10/1922](#)
  - [Letter to Dr. J. J. R. Macleod regarding Walden patent 3/04/1923](#)
  - [Telegram to Professor J. J. R. Macleod regarding Walden patent 8/04/1923](#)
  - [Letter to Dr. R. D. Defries 13/03/1923](#)
  - [Letter to Sir Robert Falconer regarding Banting's views on patents 27/01/1923](#)
  - [Letter to the Insulin Committee 22/10/1923](#)
  - [Letter to the Insulin Committee 24/10/1923](#)
  - [Letter to Dr. John J. Macleod 19/05/1922](#)
  - [Letter to Dr. J. J. R. Macleod 10/04/1922](#)
  - [Letter to Professor Macleod 25/01/1922](#)
  - [Letter to D. Smith Reid 31/01/1922](#)
  - [Letter to Doctor J. J. R. Macleod 22/08/1923](#)
  - [Letter to Dr. F. Lorne Hutchison 25/09/1923](#)
  - [Letter to Dr. F. Lorne Hutchison 3/12/1923](#)
  - [Letter to Professor Macleod 8/06/1923](#)
  - [Letter to Professor O. Minkowski 6/04/1923](#)
  - [Letter to Macleod 26/08/1922](#)
  - [Letter to Dr. Banting 11/11/1922](#)
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- [Letter to F. Lorne Hutchison 23/10/1923](#)
  - [Letter to F. Lorne Hutchison 11/12/1923](#)
  - [Letter to Professor John R. Murlin regarding a patent for an anti-diabetic agent 2/10/1922](#)
  - [Letter to Dr. J. J. R. MacLeod 8/12/1922](#)
  - [Letter to Mr. Eli Lilly 5/12/1922](#)
  - [Letter to Eli Lilly regarding U.S. patent for insulin 8/12/1922](#)
  - [Letter to Dr. Macleod regarding the application for a United States patent for insulin 11/1922](#)

#### Manuscript Writings

- [Insulin Committee Minutes 17/08/1922 to 29/09/1925](#)
- [Statement read by J. J. R. Macleod at the Insulin Committee meeting regarding patents and royalties 28/04/1924](#)
- [Report to the Insulin Committee on F. Lorne Hutchison's mission to Europe in the summer of 1924](#)
- [Copy of the article: A step forward in medical ethics](#)
- [Proof of the report on the League of Nations second international conference on the standardisation of biological products](#)
- [Memorandum in reference to the co-operation of the Connaught Antitoxin Laboratories in the researches conducted by Dr. Banting, Mr. Best and Dr. Collip under the general direction of Professor J. J. R. Macleod to obtain an extract of pancreas ...](#)
- [Application for a license to manufacture insulin.](#)
- [Dates of agreement between the Governors of the University of Toronto and their licenses](#)
- [Notes on the history of the Insulin Committee's objection to Lilly's use of the term iletin](#)

#### Medical Charts

- [Chart of insulin assays \[1923\]](#)

#### Notebooks

- [Insulin committee account book 13/02/1923 - 06/1927](#)

#### Published Works

- [Report of the technical conference for consideration of certain methods of biological standardisation](#)
- [Insulin: A. B. Brand](#)
- [Insulin, the new treatment for diabetes: its discovery, development, and present position](#)
- [On the development of glandular remedy for diabetes](#)

University of Toronto, Office of the President, 1906-1933, 23 metres

Only a small portion of the items from this collection pertain to the discovery of insulin. The pertinent records are the official records assembled by Robert A. Falconer in his capacity as President of the University of Toronto, 1907-1932. The records consist of correspondence (individual and subject) files (1906-1932), budget estimates (1910-1933), working files for the annual President's Report (1910-1921), and sessional appointments (1906-1933).

Office of the President [Robert A. Falconer] Digitized Items:

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## Clippings

- [The cure of diabetes](#)
- [Insulin and yeast](#)
- [Insulin](#)
- [Insulin: a patient's point of view.](#)
- [The triumph of](#)
- [New Canadian medical discovery](#)
- [Treatment of diabetes](#)
- [The new remedy for diabetes](#)
- [The insulin treatment](#)
- [Triumphs of medicine](#)
- [Insulin and diabetes](#)
- [The London hospital](#)
- [The supply of insulin](#)
- [Nobel medicine prize awarded to Drs. Banting and Macleod, Toronto discoverers of insulin for treatment of diabetes](#)
- [Cheaper insulin](#)
- [Cheaper insulin](#)

## Ephemera

- [Seating plan for the Banting-Macleod Nobel Prize banquet](#)

## Legal

- [Draft of the licenses to manufacture insulin in the United States and its dependencies](#)

## Letters

- [Letter to J. J. R. Macleod 16/12/1916](#)
- [Letter to President R. A. Falconer ca. 01/1917](#)
- [Letter to Sir Robert Falconer 20/07/1922](#)
- [Letter accepting an appointment in the diabetic clinic in the Toronto General Hospital](#)
- [Letter to the Governors of the University of Toronto regarding adding Banting's name to the U. S. patent for insulin 22/02/1923](#)
- [Letter to Sir Robert Falconer 21/09/1921](#)
- [Letter to Sir Robert Falconer 30/09/1921](#)
- [Letter to Sir Robert 1/10/1921](#)
- [Letter to Robert Falconer 30/09/1921](#)
- [Letter to Sir Robert A. Falconer 17/11/1923](#)
- [Letter to Sir Robert Falconer regarding the Banting Research Endowment 2/11/1923](#)
- [Letter to Sir Robert Falconer 22/11/1923](#)
- [Letter to Professor J. J. R. Macleod notifying him of a banquet to be held 26/11/1923](#)
- [Letter to Professor J. J. R. Macleod 22/11/1923](#)
- [Letter offering Dr. F. G. Banting an appointment at the diabetic clinic in the Toronto general hospital](#)
- [Letter to Mr. C. H. Best 11/05/1923](#)
- [Letter to Dr. F. G. Banting 11/05/1923](#)
- [Letter to Sir Robert Falconer \[ca. 12/1917\]](#)
- [Letter to A. W. Patterson 9/04/1918](#)
- [Letter to Sir Robert A. Falconer 10/12/1928](#)

## Manuscript Writings

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- [Memorandum on the organization of the diabetic clinic](#)
  - [First draft of the objectives of the Banting and Best research foundation 27/11/2912](#)
  - [Memorandum on the course pursued by the University of Toronto in the development of the manufacture of insulin](#)
  - [Report on situation in various foreign countries](#)
  - [Speech given at the Banting-Macleod banquet 26/11/1923](#)
  - [Memorandum on the establishment of a diabetic clinic in the Toronto General Hospital](#)

Published Works

- [The story of insulin](#)
  - [A propos de l'insuline](#)
  - [Le diabète et son traitement](#)
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### 3.4 History/provenance

*Describe what you know of the history of the collection or document. Your knowledge may not be complete, but give the best description you can.*

Sir Frederick Grant Banting papers:

Part of the collection was deposited in the Library in 1957 by the "Committee concerned with the Banting Memorabilia", which had been set up after the death of Banting in 1941. These materials included papers from Banting's office. At the same time the books found in his office (largely scientific and medical texts and journals) were also deposited in the University Library. These now form a separate collection in the Thomas Fisher Rare Book Library.

The remainder of the collection was bequeathed to the Thomas Fisher Rare Book Library by Banting's widow, Dr. Henrietta Banting, in 1976.

This part of the collection included materials collected by Henrietta Banting for her projected biography of F.G. Banting, as well as correspondence and memorabilia relating to her own career.

Charles Herbert Best papers:

The papers of Dr. Charles Herbert Best (1899-1978), co-discoverer with Dr. Frederick Banting of insulin, were transferred in 1982 from his office in the Best Institute to the Thomas Fisher Rare Book Library.

J.B. Collip: original archival material created at the time of the discovery and development of insulin and after. Donated by his daughter Dr. Barbara Collip Wyatt in 1995.

John James Rickard Macleod papers: transferred from the office of Dr. Charles Herbert Best in 1982, with the Best papers

Sadie Gairns papers: Received from Professor Michael Bliss as a gift from Miss Gairns' estate in 1987.

William Feasby papers: Given to the Rare Book Library by the Canadian Diabetes Association in 1983 and 1985. Papers had been given to the Association by Mrs. Margaret Feasby, widow of William R. Feasby.

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Elizabeth Hughes papers: The letters were donated in 1996 to the Fisher Library by Elizabeth Hughes' husband, William T. Gossett, and their children: W. Thomas Gossett, Jr., Antoinette Carter (Gossett) Denning, and Elizabeth Evans (Gossett) Karaman. The original photographs were donated in 1996 by Theodore Hughes Waddell, a nephew of Elizabeth Hughes. Some photographs of Elizabeth Hughes have also been copied from originals in the Supreme Court of the United States and in the Library of Congress. No reproduction of these copy photographs can be made without permission from the institution where the originals are held.

Academy of Medicine papers: Acquired from the Academy of Medicine, Toronto, in 1991, following the closure of the facility.

University of Toronto. Office of the President. Acquired from the Office of the President.in various accessions.

University of Toronto. Board of Governors. Insulin Committee. Acquired from the Board of Governors of the Insulin Committee, University of Toronto in 1980, two accessions in 1981 and 1982.

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## **4.0 Legal information**

### **4.1 Owner of the documentary heritage (name and contact details)**

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Name	Address	
Thomas Fisher Rare Book Library	120 St. George Street Toronto, Ontario, Canada M5S 1A5	
Telephone	Facsimile	Email
416-978-5285	416-978-1667	

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### **4.2 Custodian of the documentary heritage (name and contact details if different from the owner)**

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Name	Address	
Telephone	Facsimile	Email

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### **4.3 Legal status**

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Provide details of legal and administrative responsibility for the preservation of the documentary heritage

Along with the Department of Rare Books and Special Collections, the University of Toronto Archives and Records Management Services forms part of The Thomas Fisher Rare Book Library, University of Toronto, and are the legal owners and administrators of this material.

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#### **4.4 Accessibility**

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The Discovery of Insulin collections may be requested for use in the Library Reading Room under supervision by any member of the public with a Reader's Card. The Library's collections are not restricted to the University of Toronto community and are open to everyone with a research interest. Material pertaining to the early years of the discovery and development of insulin may be consulted world-wide online through the discovery of insulin website we have created.

Some original material is restricted due to fragility, in these cases surrogate copies are available for use, such as microfilm, photocopies and the digitized version on the website. A very small portion is restricted due to personal privacy considerations.

We have made the most significant documents related to the discovery and development of insulin freely available to anyone with internet access through the Discovery and Early Development of Insulin, which contains some 7000 page images, including photographs, letters, notebooks, charts, reports and awards:

<http://link.library.utoronto.ca/insulin/>

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#### **4.5 Copyright status**

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Describe the copyright status of the item(s) / collection

The majority of the material is in the public domain.

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### **5.0 Assessment against the selection criteria**

#### **5.1 Authenticity.**

All the material is unique, original archival material created by the co-discoverers, patients and others involved in some way in the discovery of insulin during the course of their lives and work. Identity and provenance have been reliably established without any doubt since the material has come directly from the creators of the records.

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#### **5.2 World significance**

The discovery of insulin collections are unique and irreplaceable to the world community due to the fact that they are comprised of original archival material contemporary to the discovery and immediately afterwards. The discovery of insulin has saved and improved the lives for those suffering from diabetes. For diabetics, their families and friends, researchers, doctors, clinicians, historians, writers, filmmakers and many others this material is greatly important. Diabetics consult this material for inspiration and support of their condition, through reading early patient letters and charts, Dr. Banting's scrapbooks, photographs and other records. The impact of being able to see Dr. Banting's original faded notebook page showing his idea for alleviating diabetes can be overwhelming for some. The page is dated October 31, 1920,

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and states “Diabetes. Ligate pancreatic ducts of dog. Keep dogs alive till acini degenerate leaving Islets. -Try to isolate the internal secretions of these & relieve [glycosuria].” Note the misspelling of ‘Diabetes’ as Dr. Banting was thought to be somewhat dyslexic. New doctors specializing in the field of diabetes have consulted this material for inspiration. Doctors currently in practice are challenged and inspired by these archival documents. There has been no comparable new advance in the field of diabetes since the discovery of insulin. Given the present worldwide diabetes epidemic this material remains of vital importance. This discovery has saved the lives of millions of people around the world and continues to do so. The original, archival documents included in these collections contain the research which won the Nobel Prize for Medicine in 1923 for Dr. Banting and Dr. Macleod, both of whom shared credit and prize money with James Collip and Charles Best.

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### **5.3 Comparative criteria:**

***Does the heritage meet any of the following tests? (It must meet at least one of them.)***

#### **1 Time**

The discovery of insulin collections document the world’s first medical discovery of major significance related to diabetes. This life-saving, life-changing discovery made an incredible impact on the diabetics of the world and their loved ones, both saving and extending their lives, and their quality of life dramatically. These documents are the original archival documents created at the time of the discovery, by the discoverers, their patients, administrators and others from the early 1910s to the 1940s and later. It is difficult to place sufficient emphasis on the importance of this discovery.

#### **2 Place**

#### **3 People**

The discovery of insulin collections illustrates the lives of the scientific team and the impact of their ground-breaking discovery. The co-discoverers were awarded the Nobel Prize in 1923, which was very soon after the discovery, an almost immediate recognition of their achievement. Drs. Banting and Macleod were the only two of the four co-discoverers named on the Nobel Prize, but they each shared their award with one of the other two members of the team, Collip and Best, who were student researchers at the time of the discovery.

#### **4 Subject and theme**

The discovery of insulin at the University of Toronto represents a very significant historical and intellectual development in the human sciences in the fight to conquer diabetes. This discovery has saved the lives of millions of diabetics around the world, as well as dramatically improving their length and quality of life. This archive compares favourably with other international Register collections, for example, the Leprosy Archives of Norway, in terms of the scope and global significance of the collections in the development of medical research. This documentary heritage must continue to be preserved and made freely available to researchers and should be as widely shared as possible. Inscription on the UNESCO Memory of the World Register would be one excellent method of accomplishing this. These collections clearly demonstrate the necessity and importance of institutional and public support for ongoing medical research of all kinds which may radically improve human life.

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## 5 Form and style

### 6 Social/ spiritual/ community significance:

The discovery of insulin collections have a strong emotional hold on people living today. A broad spectrum of visitors come to the Library to see this material. On a few occasions researchers have burst into tears in the Reading Room after looking through the material. These are usually diabetics themselves, or parents of diabetic children. Relatives of some of the early patients whose letters and other information is held in the collections sometimes find it an overwhelming experience to see this material. Doctors from different countries visiting the Library (some being diabetic specialists) at times are equally moved by this material. This material continues to resonate strongly with people around the world. 2012 marks the 90<sup>th</sup> anniversary of the discovery of insulin.

## 6.0 Contextual information

### 6.1 Rarity

This is original, unique archival material related to a groundbreaking, lifesaving medical discovery of worldwide importance.

### 6.2 Integrity

This original material was created at the time of the discovery and after, by the discoverers, patients and their circle.

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