Page 2 Figures – Draft Tiered Captions

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| **Pic** | **Minimal** | **Modest** | **Extended** |
| 2:1 | Macleod 1903 | JJR Macleod ca 1903 | A photograph of JJR Macleod taken around the time he took up the post of Professor of Physiology in Western Reserve University, Cleveland, Ohio in 1903 aged 27 years. |
| 2:2 | Lab Ohio | Medical School, Ohio | The Medical School Buildings, Western Reserve University, Cleveland as they were in Macleod’s time there. The building to the right is the Chemical Physiology Laboratory where he undertook research. |
| 2:3 | Diab Monograph | Macleod’s 1913 Diabetes textbook. | This shows a hard-bound copy and the title page of Macleod’s monograph, ‘**Diabetes: Its Pathological Physiology**’, which was published in 1913 |
| 2:4 | Med Sch Toronto | Toronto Medical School 1922 | This photograph of the Medical School Buildings at the University of Toronto was taken by Macleod’s niece when visiting in 1922. |
| 2:5 | Mrs Macleod | Mrs Mary Macleod | This picture of Mrs Mary Macleod in her garden was taken by her niece in 1922. |
| 2:6 | Tor house | Macleods’ Toronto house | The partly white-fronted house is where the Macleods lived at 45 Nanton Avenue during the years they were in Toronto. |
| 2:7 | Disc of Ins book | ‘The Discovery of Insulin’ | ‘**The Discovery of Insulin**’, published in 1982 by University of Toronto Historian, Professor Michael Bliss, used many original documentary sources and witness accounts to produce what many regard as the definitive version of this complex and disputed story. The dust cover of this 1987 (Macmillan Press) edition features the signatures of each of the four main researchers involved. |
| 2:8 | JJRM | Professor JJR Macleod | This is a picture of Professor Macleod taken in the early 1920s, around the time of the insulin discovery. |
| 2:9 | Collip | Professor J B Collip | James Bertram Collip, a Toronto triple graduate (BA 1912; MA 1913; PhD 1916), was Professor of Biochemistry in the University of Alberta, Edmonton when he came back to Toronto on a travelling fellowship in 1921, planning to spend several months working in Macleod’s department. After joining the work on pancreatic extracts in December, he made several contributions, the most important being significant improvements in their purity. He went on to make further major contributions in hormone research and medical education. |
| 2:10 | Best | Mr Charles H Best | Charles Best was a student in Macleod’s department was just completing his BA in Physiology and Biochemistry when Banting arrived. He had arranged to do a summer research studentship ahead of entering the masters programme in Physiology that autumn. He allegedly gained his role as Banting’s assistant on the diabetic dog experiments on the toss of a coin. He made a major contribution in analysing the blood sugar samples during the early experiments and later in scaling up insulin production. In subsequent years, he did a PhD in England before returning to Toronto to succeed Macleod in the Chair of Physiology. Although he made scientific breakthroughs in more than one area he never got beyond being an unsuccessful nominee for a Nobel Prize. |
| 2:11 | Banting | Dr Frederick G Banting | Fred Banting was brought up on a farm in Ontario. He graduated in medicine in late 1916, the final exams brought forward on account of the War. He went to England and then the front in France where he won a Military Cross for bravery under fire at Cambrai and was wounded. He completed service as a surgeon in military service in Toronto then had a further year of surgical training. He did not get the hoped for staff post in surgery so set up in independent general practice in London Ontario in 1920. That autumn and with little prior interest in diabetes, while preparing a student lecture on the pancreas he had his idea of producing an effective treatment for diabetes by first tying off the pancreatic duct in a dog. He took his idea to Macleod, an international figure in diabetes research who was now professor of physiology in Toronto. Macleod offered him laboratory space and assistant the following summer to investigate pancreatic extracts. The research, detailed in Bliss’s ‘The Discovery of Insulin’ led over the summer to the production of extracts that had some effect in lowering sugar in experimentally diabetic dogs. Banting was sure he had already discovered the cure for diabetes – but by this stage he had reached a stage that at least three other researchers had already managed. Further research studies, overseen by Macleod, the highly experienced scientist – and involving Collip, the visiting professor of biochemistry – led by January 1922 to the first successful trials in a diabetic patient (using Collip’s preparation a couple of weeks after that of Banting & Best had had limited effect but high toxicity). Macleod over saw the complex procedure of investigating the physiological properties of the extract, publishing and publicising their scientific findings and arranging for the extract – in due course named ‘insulin’ - to be mass produced and available across the world. Although Banting went on to work for 2 years in diabetes practice, becoming one of the first experienced in the use of insulin, he repeatedly resented Macleod getting any credit for what he considered his own discovery; he did not seem to even realise that his ‘big idea’ had been abandoned some time before the experimental production of clinically useful insulin. Banting was furious when it was announced in 1923 that he and Macleod were to share the 1923 Nobel Prize for medicine or Physiology – at first threatening to refuse the honour – but in the end sharing his prize money with Best. (Macleod shared his with Collip). Banting had all sorts of honours bestowed on him – including a permanent post with annual research finding in his own institute. He soon abandoned his interest in diabetes and, despite aiming to find a cure for cancer, his subsequent research did not amount to anything of significance. He had set off on a mission to Europe to exchange medical information during World War 2 when his plane crashed in Newfoundland and he died at the age of 49 early in 1941. |