

Editorial

Sir Frederick Grant Banting (1891-1941)

Imagine a young surgeon working part-time as a demonstrator in physiology to make both ends meet. While preparing for a lecture on diabetes, he takes a fresh look at pancreatic physiology. Then he happens to read an article in a surgical journal pointing out the analogy between degenerative changes which follow experimental ligation of the pancreatic duct, and the blockage of the duct by gall stones. His mind puts pancreatic physiology and the surgical article together, and seems to be getting close to an idea. He is so excited that he cannot sleep. Finally, at two in the morning he manages to crystallize his wild thoughts, and writes in his notebook "Ligate pancreatic ducts of dogs. Wait six or eight weeks for degeneration. Remove the residue and extract." The next morning he consults many professors in the town, who tell him that facilities for such an experiment are not available locally. He is advised to consult Prof. J.J.R. Macleod of Toronto. So far, so good. You would normally expect the idea to fade from the young surgeon's consciousness, and the page in his diary to rest in a dusty drawer. But not so in this case. The surgeon wraps up his practice, gets rid of his house and furniture, and proceeds to Toronto.

The surgeon was Dr. Frederick Grant Banting, and his precipitate action defies all reason. Most of the events which occur at turning points in history defy all reason. So, there he was, Dr. Banting sitting face to face with Prof. Macleod. Prof. Macleod's attitude was cordial but cautious. He was aware of similar experiments having been performed in the past, which had all failed to find the pancreatic factor which could prevent diabetes. However, looking at Banting's enthusiasm, Macleod agreed to give him ten dogs, use of the laboratory for eight weeks, and an assistant for carrying out biochemical analytical procedures. The assistant was a fourth year medical student, Charles Herbert Best. Banting and Best commenced work on 16 May 1921, rejecting all conventional warning and discouragement. In the course of their experiments, they administered over 75 doses of extract from degenerated pancreatic tissue to 10 different diabetic animals. Since the extract always produced a reduction in the blood sugar and urinary sugar level, they concluded that the extract contained the internal secretion of pancreas. The active principle had already been named long ago, in anticipation, as insulin (*insula*, island) because of its origin in the islets of Langerhans.

After initial scepticism, the discovery was widely recognized through many prizes and awards. The climax was the Nobel Prize, which was awarded jointly to Banting and Macleod. Banting was deeply hurt by the fact that the Nobel Prize Committee had not recognized Best. To express his gratitude to Best, Banting shared the prize money equally with him. Inspired by this gesture, Macleod also shared his prize with Collip, who helped them in devising better methods of extraction of insulin after the initial discovery had been made.

The discovery of insulin as well as the unique partnership of Banting and Best will always remain important milestones in medical history. Apart from the fact that the discovery was made by inexperienced workers, it solved a long-standing problem. Of course, what stands out most glaringly is the dramatic nature of the discovery: experiments conceived in 1920, study begun in 1921, discovery made in 1921, applied clinically in 1921. During the birth centenary year of Sir Frederick Grant Banting, and the 70th anniversary of the discovery of insulin, we are pleased to recollect this saga for the readers of IJPP.

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CORRIGENDUM

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— Editors

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