Israel Mordecai Rabinowitch (1890–1983): A Father of Clinical Chemistry in Canada

Shortly after his death at the age of 92 (1), Dr. Israel Mordecai Rabinowitch (Figure 1) was described as a father of clinical chemistry in Canada (2). As long ago as 1919, Rabinowitch set up a small biochemical laboratory in one corner of the interns' clinical laboratory at the Montreal General Hospital. Though still an intern himself, with the many duties of an intern, Rabinowitch decided to test a number of blood analyses, such as sugar, urea nitrogen, non-protein nitrogen, and creatinine in a variety of conditions, medical and surgical, including diabetes mellitus. His account of this venture, in personal communications to me (3), makes strange reading for anyone familiar with the elaborate and complex clinical chemistry laboratories of today. No funds being available, all expenses had to be borne by him personally, despite the fact that he was already in debt. Thus, for water-baths, he used jam cans discarded by the diet kitchen. For estimations of urea, instead of costly Pyrex tubes, he used another discard from the diet kitchen: cylindrical olive bottles. For burettes, he purchased glass tubing or obtained odd pieces from the dispensary, and for the necessary calibrations with mercury, he used an analytical balance in the students' laboratory of the Department of Biochemistry of McGill University, gaining access to the balance after classes through the departmental janitor. For a colorimeter, he made two long tubes from glass tubing and pasted a narrow strip of graph paper on one side of each to mark the different levels. Whenever glass-blowing was needed, he did it himself.

His interest in the applications of biochemistry to medicine was rewarded the following year (1920) by his appointment as Pathological Chemist in the Department of Pathology of the Hospital and by the provision for him of a small biochemical laboratory in that department. He lost no time in conducting productive research, although he was without technical assistance. Thus, in 1921, he published five articles in medical journals (4–8), all involving clinical chemistry.

This beginning of his career in clinical chemistry was a beginning early and successful enough in Canadian medicine to justify describing him as a father of clinical chemistry in Canada. Under his direction, the small biochemical laboratory grew into a separate department of the Montreal General Hospital—first named Metabolism and later Metabolism and Toxicology—and dealt with diverse interests, as the following account will show. But clinical chemistry always remained a major responsibility of the department and a major interest of its director, Dr. Rabinowitch.

"Rab," as he was known to his friends and colleagues, was born in Philadelphia, PA, December 17, 1890, but was brought to Canada at an early age. He enrolled as a student at the University of Toronto and completed part of his medical course there. In 1915 he transferred to McGill University, where he received his medical degree in 1917. Following this, he became a member of the resident staff of the Montreal General Hospital. At the same time as his early efforts in clinical chemistry (1920), he established a diabetic clinic at the Hospital. His entry into the field of diabetes mellitus undoubtedly came about through his interest in clinical chemistry and, indeed, such a clinic for diabetes could not have functioned without a laboratory devoted to clinical chemistry. In any event, the establishment of the clinic could not have been better timed, for the "discovery" of insulin followed shortly thereafter. Rab was one of the first to obtain a supply of insulin from Toronto and published an article on its use as early as 1923 (9). The Diabetic Clinic, under his direction, was an outstanding success. In the 1930s it was reported to be the largest in Canada and the second-largest in North America.

In the meantime, Rab began teaching at McGill University; his first appointment was in 1922 as a demonstrator in medicine. He rose steadily to the rank of associate professor of medicine—full professorships were a rarity in those days—and also had special appointments in medical jurisprudence and toxicology.

With the growth of the laboratory, the clinic, and his
teaching responsibilities, his interests expanded to include endocrinology, nutrition, toxicology, medical jurisprudence, and, in World War Two, defence against chemical warfare agents (Figure 2). Although one or two of these may seem somewhat removed from clinical chemistry, those of us who followed his career closely could appreciate the important role clinical chemistry played in the development of his other concerns.

In 1947 he retired as director of the Department of Metabolism and Toxicology. Reflecting his wide and varied interests, he then established the Montreal General Hospital Institute for Special Research and Cell Metabolism. This later became the McGill-MGH Research Institute, under the direction of Professor J. H. Quastel. Thus Dr. Rabinowitch was the founder and first director of this institute, as he had been of the Department of Metabolism and Toxicology and the Diabetic Clinic. When he retired from his principal medical activities in 1955, Rab had come a long way from his youthful struggles to establish a primitive clinical chemistry laboratory at the Montreal General Hospital.

References

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Fig. 2. Sir Frederick Banting and I. M. Rabinowitch, November 1939, about to leave for England, where Rab organized a mobile defence laboratory against chemical warfare

Source: George Manning papers, University of Western Ontario