

# EDITOR'S NOTE

## Imaging in Medicine

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ADVANCES IN BIOLOGY AND MEDICINE have been nothing short of spectacular. Yet the current frontier depends, in large part, on the labors of earlier pioneers. Which discoveries have been most significant is arguable. Our choices of discoveries would include the following, not necessarily in temporal sequence: The experiments and observations by Harvey on the circulation; Jenner's use of cowpox to vaccinate against smallpox; the development of the microscope by Leeuwenhoek; the innumerable observations on bacterial diseases and rabies by Pasteur; Semmelweiss' insight into the cause of puerperal sepsis; Fick's physiologic principle that bears his name; Virchow's organization of the systematic study of pathology; Mendel's insight in genetics; Koch's discovery of *Mycobacterium tuberculosis*; and the accomplishments of many others such as Welch, Libman, Landsteiner, Starling, Otto Frank, Ehrlich, Einthoven, the Curies, Roentgen, Osler, Richard Lewisohn, Schick, Rabi, Banting and Best, Homer Smith, Pauling, Hodgkin and Huxley, Watson and Crick, Fleming, Florey, Salk, Sabin, Berson and Yalow, Sutherland, Gilbert and Goldstein, and Furchgott.

We have not included the more recent advances, since readers can pick and choose their own from a list of names of Nobel laureates and of recipients of other major awards, and the recent biomedical literature. We apologize if we have omitted names that any reader considers more significant. Our purpose in reprinting the following articles, however, is to highlight the contributions of individuals whose names and work have been forgotten, denied, or lost. This is not to say that this work and observations are comparable to that of Pasteur, Watson and Crick, and Berson and Yalow. But there is no doubt in our minds that this work can be considered the first to demonstrate the clinical importance of imaging techniques which now detail the anatomy and quantify the function of organs, tissues, and cells, not previously appreciated, even at surgery or autopsy.

Dr. Moses Swick is the author of the landmark article which is being republished in this issue of *The Journal*. The original report appeared in 1929 in German.

Dr. Swick describes his search for and successful use of an iodine-containing contrast compound which made possible the relatively noninvasive simultaneous delineation of the renal anatomy and the evaluation of renal function. This was no small feat. This test was known originally as the intravenous pyelogram, and by some as the "Swick" test. Crude as the test was, it represented a major advance in the diagnosis of kidney disease. Additional illustrations of some of the original roentgenograms are shown in the republished article by Jaches which follows. While the test has been supplanted, it nonetheless ushered in the era of functional imaging. Since Dr. Swick's remarkable discovery, a safer, non-ionic, intravenous, iodinated contrast material has been developed and is now almost universally utilized. Intravenous contrast applications have dramatically expanded since the introduction of angiography and computed tomography. Today, utilizing multidetector CT technology, contrast enhanced lesions as small as several millimeters can be easily detected and biopsied percutaneously. Noninvasive coronary artery and vascular imaging is becoming a reality that Dr. Swick could only have imagined.

Dr. Swick graduated from the Columbia University College of Physicians and Surgeons and was a house officer at The Mount Sinai Hospital. Upon completion of his house staff training he accepted a Libman Fellowship offered by the Hospital to study abroad. In those days, The Mount Sinai Hospital offered this fellowship, and many others, to support the growth, development, and expertise of promising young clinicians. This program of privately supported fellowships long antedated the national effort to promote the training of clinical investigators and practitioners. It is testimony to the commitment of the institution and its leaders to professional education and, thereby, to the high quality of patient care at this hospital and elsewhere, wherever the recipients were destined to be appointed.

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The Mount Sinai Journal of Medicine