the future of the social sciences may have a prospect of being fulfilled.

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Obituary

Simon Flexner and Medical Discovery

The gains which enlarge the life of man soon seem to him to have existed always. So it is already with those he owes to Simon Flexner. During Flexner's lifetime a fresh age of medical endeavor came in—an age in which experiment largely took over from observation. This change did not happen as matter of course—it was achieved; and in the achievement Simon Flexner played a trenchant part.

Flexner's great good fortune was to be born into his family. His German father and Alsatian mother had not long previously come to Kentucky, and he was one of 9 enterprising and gifted children, who soon had poverty to spur them on—for their father died young. Close-knit in sympathies, they helped one another toward educations worth while. The eldest son, Jacob, in time a physician, was a pharmacist first, and Simon clerked for him, becoming a pharmacist too. Then and soon after, as a medical graduate of the University of Louisville, he examined specimens from the sick and became convinced of the worth of the laboratory for medical practice, as was no one about him; for the science of medicine was at a deep ebb throughout America. He set himself to learn pathology from the meager books available, read what French and German articles he could lay hands on, heard of the graduate course started by Welch at the Johns Hopkins Hospital, and, on a family decision underwritten with the earnings of his younger brother, Abraham, went to Baltimore to learn more. He was 27 years old. Welch was already aware of him through a correspondence about tumors.

It was by now 1890 and all was astir at the "Hopkins." New ideas and new methods were to be tried out, and this in a period when resounding discoveries were announced almost weekly from Europe. For a while Flexner went about the laboratory scarcely noticed, but he felt the intellectual rapture of the time, and his curiosity and his labors were alike prodigious. Before long he gained Welch's attention in the most telling of ways—by making a find—and within a year he was appointed fellow in pathology. Welch soon placed challenging responsibilities upon him, and he grew with the growing sciences of experimental pathology, bacteriology, and immunology. After only three years he was sent off to look into an outbreak of cerebrospinal meningitis in Maryland, and after another five he headed a commission sent to learn what diseases existed in the Philippines. Through both tasks he was prepared as if by prescience for later needs. In less than 10 years Johns Hopkins made him professor of pathological anatomy. But best of all, long before then he and Welch had entered upon a friendship of admiration and trust such as now and again shines in the history of science. Throughout their lives each turned toward the other. The bond between them proved of first moment to the advance of medicine.

In 1900 Flexner went to the University of Pennsylvania as head of the Department of Pathology. Here he was pitted against heavy routine duties, but he administered so ably that they did not balk his researches. These were continually of wider scope, for he would not limit his thought to any theme, however rewarding, but at 40 kept himself still an apprentice to knowledge. The Federal Government called on him to go to California and decide whether the plague had entered from China. He had studied the disease at first hand on his way to the Philippines and now in short order disclosed its existence in San Francisco. But this he regarded as a mere aside, going back to his researches.

Medical science had meanwhile been coming into its own: after nearly 200 years of metaphysics the "experimental philosophy" had reasserted itself. In 1901 The Rockefeller Institute for Medical Research was founded. Though the idea for it was one man's, though it was made real through the beneficence of another, though its form was determined by physicians who were scientists as well, it yet must be deemed a folk expression. For it was what Americans wanted, as they were quick to realize; since pio-

neer days the homely "try and see" had been their habit, and of late they had begun to have exciting thoughts on what experiment might bring to pass for the betterment of life, if carried out in a large way. Research institutions had already been set going in Europe, either around outstanding men or to cope with specific ills, notably the infectious diseases; but The Rockefeller Institute had a larger aim: it was to test the scope of the experimental method as such.

Welch wrote, when accepting a place in the group planning the Institute (of which Flexner became a member), that the success of the project would depend entirely upon who directed it. Its tentative character was plain in the first modest grant of funds, all to be spent within 10 years. Flexner, when sought as Director, asked himself in the safety of his university, "Why should I?"; but he knew that he should and would. It was for this that he stood prepared. Now, as on later occasions, he showed what in most people might have been audacity; but in his case it was judgment.

The new undertaking got under way in 1904. For the time it was most adventurous, strange though this seems now. Highly accredited scientific personages believed that little would come of it, that discovery could not be conjured. In those days research was bound tight in the academic context, and even tried investigators feared giving themselves over to it as a career; they knew well what masses of failure must often be written off. To young university workers, uncertain of themselves and with their way still to make, the opportunities held forth by the Institute seemed utterly precarious. Flexner's first appointees were nearly all men so given over to research that their very devotion had made their lives difficult; they were nonconformists, strong only in the fact that they could discover, and all save one were young.

In Flexner's later words the Institute was an "attempt to add to knowledge by discovery"; only by corollary was it "to apply that knowledge to the prevention and alleviation of disease." His immediate problem was that of today—how best to find out. He had also to show, while the permanence of the Institute was still in doubt, that it could be of practical use; but this was soon done. The real problem remained. In attempting to solve it he did not play safe. He scorned second-rate themes bound to give a yield and would have within the Institute no ready-made "projects" and no committees with designated aims, not even permanent laboratories for this or that. An individualist even more bred than born, he put his faith in individuals, caring little what they did if they were finding out. During the years of his own long novitiate, within a period now perceived to have been the greatest in the history of medicine, he had watched knowledge in flood, lapping now here, now there, yet advancing always and penetrating into every compartment of science, however stout walled. As lesson, this had been enough. In his quest for discovery he so expanded the Institute's scope as time went on that imagination was needed to make plain that at some points it had any relation to medicine. This imagination was his—the more constructive because it was exceedingly factual—and with it he had that common sense which in its perfection is so very uncommon.

The prime aims of the Institute were accomplished within a few years. Flexner showed that society would be more than wise to support men solely for what they might find out, however distant this appeared from stated medical needs; and that men of the right sort could be trusted to have better ideas than others could think up for them. He showed too that native ability to do research, sometimes of even the first order, exists here, there, and yonder in the community, all unrevealed because it lacks training and a chance. The discoverers of the past whose greatness had seemed to set them apart were not really unique but peak instances. Forty years ago these facts were new and strange; now they are axioms, and progress takes off from them.

A prime early need of the Institute was for trained workers. In that day the products of high school, college, and medical school in succession emerged with little intellectual curiosity as a rule and almost no notion of how to go about gratifying it. Somewhere along the pedagogic tunnel one of man's primal urges had been done in.[1] Things are better now, yet when the desire to do brings a medical youngster into the laboratory, he still is at loose ends more often than not, as every oldster knows. The Institute undertook to teach him to handle himself. However perturbing it might be to laboratory heads and hampering to prompt advances, Flexner insisted that the striving youngster should develop problems of his own, and with them as much independence as he could profitably endure, so that he might become a scientist in his own right. Had not Dr. Welch done that? He realized that cross-pollination makes thought rich and that transplantation may keep it sturdy. Onlookers soon saw that the young men who came within his influence gained the capacity to cope with big possibilities; and as more and more of them went out from the Institute to start research elsewhere and to teach others, its quickening influence was felt throughout the land. European governments eagerly patterned new institutes after the American.

Flexner's task meant more to him than did any

[1] Walter Cannon once cited in this relation the Elephant's Child of Kipling, which got spanked whenever it asked a question.

human being, himself included. Yet always he thought of discoveries within the Institute as those of individual men and discussed them in such terms, not as the yield of an organization. He was never jealous of the renown gained by others of the staff and made no pretension to intellectual leadership; yet he directed whenever there was need, had a singular awareness of what wanted doing, and with this the faculty of sharp-cut decision. Deeply believing that the biological scientist is kept strong only through contact with nature, he never delivered himself over to administration, but worked indomitably in the laboratory—always as a staff member, never as Director, being content with a single assistant.

The early 1900s reeked with preventable disease. Flexner's researches in relation to them did much to establish the Institute in the public esteem shortly after it got under way. This was especially true of his studies of cerebrospinal meningitis, which culminated in the elaboration of a serum that has saved multitudes of lives, and his disclosures concerning the virus cause of infantile paralysis, a disease newly come in epidemic form to the United States and the darker menace because almost nothing was known of its character. Completely objective about himself, he greeted his successes and the honors that crowded to him, as he did his mistakes, with equanimity. Yet he had an intense delight in youthful achievement and showed to striving young people the personal generosity that he had himself called forth in early days. He would go to great lengths to see that a difficult man got well started on leaving the Institute, sometimes adroitly helping him for years. His affections were not easily given, for life had taught him caution; but his fidelities were deep. Slight of figure, quiet spoken, he yet had a dignity so innate, so tranquil and full of meaning, that to not a few persons, as he grew older, he seemed awesome. But he understood and could feel for the other fellow. Inherently shy and reticent, humility and a covert humor tempered his power. Always he sought Mrs. Flexner's aid in his larger decisions. Her inclinations and her wisdom complemented his.

There were, of course, incessant demands upon him from without, but he would respond only to those he deemed crucial. Nevertheless, it has been said, and truly, that perhaps no man save Welch has done so much for American medicine. In part he did it through other mediums than the Institute, these making real his ideas on research, on public health, and on the education of scientists.

After his retirement in 1935 he was for a time Eastman professor at Oxford University, where the medical school, newly endowed, had to choose amongst opportunities. His last years he gave over to writing, with his younger son, and documenting for posterity, a history of the life and deeds of Welch in a time when science first came to full stature. But all these undertakings were the lesser part. He had proved that the experimental method can meet human needs if it be given its head, wide and free; and he had shown that discoverers can be discovered. These were amongst the nascent hopes of his time, and he brought them to pass.

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