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Abraham Flexner (1866-1959) and Medical Education

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Abraham Flexner had unusual influence on modern medical education. He was not a physician, nor had he ever taught in a medical school. He was an educational researcher and foundation executive; but his studies in medical education in 1910, 1912, and 1925 came at propitious times to effect wide reform. This article attempts to describe Flexner's contributions to medical education, to identify his research methods, and to evaluate the influence of his writings in this area.

Flexner's father, a Jewish immigrant from Bohemia, had made a precarious living as an itinerant peddler in the Southern states and had finally settled in Louisville, Kentucky, where Abraham was born November 13, 1866. The sixth of nine children, young Flexner attended the Louisville public schools and worked part-time in the Louisville library. Financial help from his older brother Jacob, who owned a drug store, enabled Flexner to attend the Johns Hopkins University in Baltimore. Here in America's first modern graduate university, then in its first decade under the guiding genius of President Daniel Coit Gilman, Flexner first came into intimate contact with thorough scholarship and exacting research.

By concentrated study in the classics, Flexner completed the requirements for the bachelor's degree in 2 years, from 1884 to 1886. He taught in the Louisville High School from 1886 to 1890 and operated his own private college preparatory school for boys from 1890 to 1895. Something of the achievements of "The Flexner School" can be noted in a complimentary letter from Charles W. Eliot, President of Harvard, expressing admiration for the early entrance age and rapid progress of Flexner's boys in that college.

Flexner married in 1898, and it was Mrs. Flexner, later a well known playwright, who induced him to give up his school for graduate study. Flexner went to Harvard for his master's degree from 1905 to 1906. He studied psychology under Hugo Münsterberg, Edwin Holt, and Robert Yerkes; philosophy under Josiah Royce; and science under George H. Parker at the Agassiz Museum. He also studied brain anatomy under his brother Simon Flexner at the Rockefeller Institute for Medical Research in New York. The next year, 1906 to 1907, he went to Europe. At the University of Berlin he studied psychology under Karl Stumpf and higher education under Friedrich Paulsen. At Heidelberg in the summer of 1907 he wrote his first book, *The American College*.

This book criticized practices which Flexner had observed at Harvard: the elective system, the lecture method, and the use of assistants to instruct undergraduates. Most American college graduates of 23, he noted, were inferior to German students of 20. Many pupils whom he had prepared well for Eastern colleges, he found, had lost rather than gained enthusiasm for scholarship during their college years.

Few read this book, but among these few was Henry S. Pritchett, President

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of the Carnegie Foundation for the Advancement of Teaching, founded in 1905. On his return from Germany, Flexner, seeking work, introduced himself to Pritchett. The foundation executive let Flexner read a speech of his similar, in criticism, to Flexner's book. At a second meeting Pritchett asked Flexner if he would care to make a study of medical schools. Thinking that he had been mistaken for his brother Simon, Flexner explained who he was. Pritchett replied, "That is precisely what I want. These professional schools should be studied from the viewpoint of the educator. I know your brother. This is a layman's job."

When Pritchett presented Flexner's name to the Carnegie Board of Trustees, there was a difference of opinion over the fitness of a layman to study medical schools. Pritchett persisted, stating to the board that he must be free to choose his own associates and that he would assume full responsibility for Flexner's competency. Reluctantly the board gave its approval. Flexner was to receive a salary of $3,000 a year and full traveling expenses.

A little known book of criticism and a chance meeting with Pritchett had launched Abraham Flexner on a new career. The stage was set for an investigation which was to become something of a landmark in the history of modern medical education. Flexner was then 42.

He began by reading widely in medical educational literature. Cooperating with the American Medical Association, he conferred with its officers in Chicago. He also read the reports of the A.M.A.'s Council on Medical Education, which had been concerned about upgrading medical schools since its formation in 1904.

Realizing that the Johns Hopkins Medical School was one of the best modern medical schools in the country, Flexner studied its management and consulted with its staff. He also consulted with his physician brother Simon and his staff at the Rockefeller Institute for Medical Research.

Flexner used the following criteria to measure medical schools. He examined entrance requirements to see if these assured adequate preparation and successful completion of the program. He gauged the size and professional training of the faculty to ascertain whether it gave the major portion of its time to teaching and research. He determined the income of schools from endowment and fees to see if this amount assured stability and growth. He looked for laboratories adequately equipped to provide sound instruction for the first 2 years in the preclinical branches of medicine. He ascertained the relationship between the medical schools and affiliate hospitals to note whether free access to beds was available for trainees. He examined the manner of appointment of physicians and surgeons in affiliate hospitals to learn if they had the requisite time to be teachers and researchers in clinical cases.

Flexner investigated each of the 147 medical schools in the United States and each of the seven medical schools in Canada. His pattern was to spend a short time at each of a half-dozen or so schools in one locality and return to New York to write up his notes. These reports he submitted to Pritchett for approval. Flexner also sent summaries of his reports to the deans of the respective medical schools to give them a chance to correct any misstatement of facts.

The reactions of the heads of the medical schools were mixed. Some were convinced, despite Flexner's attempts to dislodge the idea, that a Carnegie grant would follow his visit. Some received him cordially; others were evasive. Some were hostile; a few attempted subterfuges. At one school Flexner was kept from entering locked doors marked

"Anatomy," "Physiology," "Histology" and the like. He left the dean at the railroad station, purposely missed his train, returned to the school at night, and by bribing the janitor opened the locked doors to find that behind each was a classroom without equipment.

The result of Flexner's year-and-a-half study appeared in 1910 as Bulletin No. Four, entitled *Medical Education in the United States and Canada.* The report surveyed the history of medical education in both countries and summarized his findings of their medical schools. He also listed the facts about each school separately.

Flexner found entrance requirements for admission to medical schools to be low or nonexistent. Only Harvard and the Johns Hopkins University required a college degree for entrance. Fourteen other schools required 2 or more years of college work. Fifty schools required a high school education. Eighty-nine schools asked only "the rudiments or the recollection of a common school education." The teaching staffs of 139 schools were made up of physicians in local practice. As part-time professors with full-time local practices, they had less than sufficient time for teaching and research. These 139 schools had either no laboratories and libraries or inadequate ones. Of the total 155 schools only 50 were integral parts of universities. The schools Flexner found to be motivated primarily by profit, gave inadequate classroom instruction, neglected laboratory and clinical work, and did not provide for their trainees free access to hospital beds.

In his introduction to Flexner's report Pritchett placed the blame for the plight of medical education on the large number of competing commercial medical schools which had by unethical advertising drawn unprepared youths into medicine. In disregard of the public welfare these schools had over-produced medical practitioners, many of whom were ill trained.

The report received immense publicity and produced something of a sensation. Flexner was accused of misrepresentation and threatened with lawsuits, but he let the facts speak for themselves. He stood his ground, and Pritchett backed him up. When the recrimination of charge and countercharge died away, the response amazingly enough was a positive one from most of the medical profession, the faculties of medical schools, and the state boards of medical examiners. Weak medical schools which had been operating mainly for profit closed their doors. Some schools near one another pooled their resources in order to survive. Seven schools in Louisville became one. Fifteen schools in Chicago consolidated into three.

Flexner's report brought to a head the reform movement which the A.M.A.'s Council on Medical Education had pressed for since 1904. Where the council's investigators, who were physicians, had necessarily been tactful with their professional colleagues in evaluating medical schools, Flexner as a free agent had obtained the facts and appraised them publicly and without fear.

Flexner's report was incisive and bold. In his chapter on "Reorganization" Flexner wrote, "The physician is a social instrument." He continued in this vein:

> And as disease has consequences that immediately go beyond the individual specifically affected, society is bound to protect itself. . . . It matters not that the making of doctors has been left to some extent to private institutions. The state already makes certain regulations; it can by the same right make others. . . . The medical school is a public service corporation. It is chartered by the state; it utilizes public hospitals on the ground of the social nature of its service. The medical school cannot then escape social criticism and regulation. It was left to itself while society knew no

better. But civilization consists in . . . gains won by science and experience; and science and experience have together established the terms upon which medicine can be most useful. . . . Society forbids a company of physicians to pour out upon the community a horde of ill trained physicians.

While the publication of Bulletin No. Four was having its effect on medical schools, it had several consequences for Flexner. Realizing belatedly that his study should have been preceded by one on European medical schools, he received permission from Pritchett for a companion study, *Medical Education in Europe*, published as Bulletin No. Six in 1912 and based on his research in England, Germany, and France during 1910 and 1911. Flexner found European secondary schools, particularly in Germany, superior to those in America for college and medical school preparation. He favored the European emphasis on combining teaching and research in clinics and laboratories. In German medical schools he found enforced and adequate entrance requirements, a close relationship between laboratories and clinics, teachers who were professors and not practicing physicians, and an atmosphere which held research in high esteem. In French medical schools he admired the free access given to medical students to hospital wards.

Another important consequence of Flexner's initial study led to an innovation in medical schools whereby chairs in clinical subjects were endowed so that professors were relieved of the necessity of carrying a private practice and could devote their full time to clinical research. This "full time" innovation came about through the interest of Frederick T. Gates, director of the Rockefeller foundations.

Gates invited Flexner to lunch and told him, "I have read your 'Bulletin Number Four' from beginning to end. It is not only a criticism but a program." Flexner replied that he had intended it as such, that he had included two maps in his report, one showing the 155 medical schools then functioning, and the second showing the location of the reduced number of 35 schools properly endowed and conducted by well trained personnel. "What would you do," Gates asked, "If you had a million dollars with which to make a start in the work of reorganizing medical education?" Unhesitatingly Flexner replied, "I should give it to Dr. Welch," explaining that only at the Johns Hopkins Medical School under Dr. William H. Welch's direction would a million dollars result in a model advance for other medical schools to emulate.

At Gates' suggestion and with Pritchett's approval Flexner went to Baltimore and broached the subject to Welch. At dinner Welch brought Flexner together with two members of his staff, Dr. Franklin P. Mall and Dr. William S. Halstead. It was Mall who suggested that the most fruitful use of one million dollars to reorganize medical education would be to endow clinical chairs on a full-time basis. The idea was not new. It had been suggested a few years before in a speech by Dr. L. F. Barker, then a colleague of Dr. Mall at the University of Chicago. Mall himself attributed the earliest origin of the idea to his teacher of physiology at the University of Leipzig, Dr. Karl Ludwig.

To appreciate the consequence of the "full time" scheme, it must be remembered that the leading men in medical education received only nominal salaries from their medical schools. They had to make their living by private practice. To free them for full-time research in medical laboratories and clinics would help to hasten new discoveries and new techniques.

It was this "full time" plan that Flexner put before Pritchett and Gates. Opposition at the Johns Hopkins Medical School was overcome with some difficulty, for this was a radical departure from long established practice in Europe and the United States. The public too was initially opposed to the plan because it would take from them the direct services of the best medical practitioners. However, by 1913 $1,500,000 was given to the Johns Hopkins Medical School to initiate the "full time" scheme. The plan did, in fact, become a wholesome model for other medical schools and has since benefited medical research and medical education.

An important by-product of Flexner's work in urging adoption of the "full time" plan was that it began for the first time the channeling of foundation money to medical education. Between 1919 and 1921 the Rockefeller Foundation gave the General Education Board $45,000,000 earmarked for medical education. After Flexner joined the General Education Board in 1913, he provided the leadership in channeling foundation aid to medical education. It is estimated that he secured for medical schools no less than a total of $100,000,000.

One final thing must be mentioned in reviewing Flexner's influence upon medical education. He broke the precedent of foundation executives' being unwilling to aid state university medical schools. Gates differed strongly with him in this. In winning over the objections of Gates, Flexner showed that he understood the progressive forces which were making state universities important social institutions and scientific laboratories.

Up to 1923 the General Education Board and the Rockefeller Foundation had limited their medical appropriations to privately endowed institutions. Flexner was asked that year to help the University of Iowa move its medical school to a site where a new hospital with the necessary laboratories was to be built. Without help this move would not have been possible for many years. Flexner saw that unless the aid were given, medical education would be retarded in this key section of the Middle West. He proposed a joint grant by the General Education Board and the Rockefeller Foundation.

In a stormy session of the Rockefeller board meeting, Gates declared that state universities were creatures of politics, subject to dictation on economic and scientific matters. Free and private institutions he would help but not public institutions. Flexner pointed out that the important private schools were mainly in the East and that to bolster one important midwestern medical school would stimulate healthy competition among other public institutions. Flexner's views prevailed. Within a short time after the grant was made, Missouri, Michigan, Minnesota, and Wisconsin entered into friendly rivalry to overtake Iowa's lead in medical education.

Flexner made significant contributions in fields other than medical education. In 1912 and 1913 he produced for the Rockefeller Foundation an important sociological study entitled *Prostitution in Europe*, which was widely translated and which in turn influenced a companion study by Raymond B. Fosdick entitled *European Police Systems*. For the General Education Board he helped plan an important series of public school surveys in Maryland, Delaware, Virginia, North Carolina, Kentucky, and Alabama.

Following retirement from the General Education Board in 1928, Flexner gave important lectures at Oxford University and elsewhere; wrote his most important book on higher education, *Universities: American, English, and German*; and climaxed his remarkable career by founding the Institute of Advanced Research at Princeton, New Jersey. For this last institution, of which he was the first president, he secured as its first

professor Albert Einstein, who took up permanent residence in the United States.

Mrs. Flexner died in 1955, and Flexner moved from New York to suburban Washington, D.C., to be near his married daughter. Here he died on September 21, 1959, at the age of 93.

Abraham Flexner overcame a background of impoverished ambition to rise to eminence. The great graduate university which Daniel Coit Gilman had created at Johns Hopkins inspired Flexner in his quest for truth and gave initial direction to his life. His respect for scholarship and his meticulous research abilities were sharpened by European study, particularly in Germany.

However, Flexner's outstanding ability lay in his power to uncover facts, seize upon ideas, and correlate these around a central pattern leading to improvement. Flexner came at the right time in the history of modern medical education. The reforms he effected were already in fermentation. What was needed was an incisive report. Flexner's studies provided the needed stimulus.

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