In the summer of 1910 a document entitled *Medical Education in the United States and Canada* was released by the Carnegie Foundation for the Advancement of Teaching. The author was Abraham Flexner, and the publication soon became known simply as the Flexner report. It contained an analysis of the condition of physician training in both countries, along with specific recommendations for improvement. Flexner’s study was instrumental in reshaping medical education in America, and he himself went on to hold positions of great authority and power, from which he influenced, and in some ways determined, the subsequent course of academic medicine in the USA. He was also a tireless advocate of educational improvement and reform in other areas, and concluded his active career by helping to found and then to direct for nine years, the Institute for Advanced Study, which welcomed such figures as Goedl, VonNeumann and Albert Einstein.

This exhibit is designed to help visitors understand:

- How the Flexner report came about;
- How a group of extraordinarily able men influenced its creation;
- How the author’s remarkable talents and energy shaped it;
- The national importance of the report’s conclusions; and
- The effect it had on the institution here, then known as the Medical Department, and how local officials responded to the report’s evaluation.
He was born in 1866 in Louisville, KY into a large family of German-Jewish immigrants, in reduced financial circumstances after business reverses.

With a loan from his brother Bernard, Abraham enrolled in Johns Hopkins University and graduated in 1886 with a degree in Classics, gained in only two years of study.

He returned to Louisville and taught in the local schools. Later, he opened “Mr. Flexner’s School”, a preparatory academy which helped many local students enter elite colleges. His innovative methods drew attention from educational reformers and praise from college officials.

The commercial success of one of his wife’s plays brought financial independence. He closed the academy in 1906 and attended Harvard, which he disliked intensely, obtaining an MA degree in psychology. While traveling in Europe, he wrote *The American College*. It was a highly critical study of higher education in the USA.

His work was known to Henry S. Pritchett, who entrusted him with the Carnegie Foundation study on medical education in the USA and Canada, despite some hesitations of his own and the misgivings of certain members on the Foundation board.

Flexner conducted the review of medical education in the USA and Canada from 1908-1910.

1911, Flexner traveled to Europe to prepare a report on physician training in Germany, France and Britain, published by the Carnegie Foundation as its Bulletin Number Six. After his return to the USA, Flexner began working in 1913 with the Rockefeller philanthropies, advising on medical education matters as a member of the General Education Board. After some work centered on improving primary education especially in the South, the Board’s interest in medical education reform revived, and Flexner approached John D. Rockefeller, Sr. asking for the sum of $50 million to help fund this effort. The request was approved and Flexner administered the extraordinary sums Rockefeller made available for this purpose, while raising even more from other sources. His entry in the authoritative *American National Biography* states that “he was for fifteen years the principal arbiter of the institutional development of American medical education”.

In 1928, the Rockefeller Foundation was re-organized, without a place for Flexner who had alienated colleagues, partly for reasons of personality, but also out of a feeling that he had worked far too long in almost complete independence. Initially shocked, he accepted a pension from John D. Rockefeller, Jr. He traveled abroad, lectured and wrote on educational policy matters.

Shortly after his departure from the Rockefeller Foundation, Flexner was asked to advise on the creation at Princeton University of the Institute for Advanced Study, devoted to the study of fundamental problems in mathematics and physics. In 1931 Flexner became the Institute’s first director, and he welcomed leading American scholars as well as those fleeing Nazi persecution in Europe: Einstein, Goedl, von Neumann and others.

Abraham Flexner resigned from the directorship of the Institute in 1939, and spent an active retirement writing two works of autobiography, studies on education, biographies of Henry S. Pritchett and Daniel Coit Gilman, first president of Johns Hopkins, in addition to a stream of articles, speeches, editorials and other works. In a long and productive life, Flexner met, and often worked closely with, many of the most significant figures of 20th century America. The index to his autobiography is a brief “Who’s Who” of US history in that period. Born one year after the end of the Civil War, he lived long enough to see the launch of Sputnik, the first artificial satellite in 1957, and died in 1959.

Abraham Flexner was a remarkable man who was highly intelligent, well grounded in the classics of Western culture, industrious, able to assimilate large amounts of information and synthesize it into a cogent and compelling form. He possessed a blunt, effective style of writing, and all these qualities perhaps made him the ideal man for the task of writing a report on the state of medical education at that time. The astonishing success of the report established him as an expert, in fact, as the expert on medical education. He was able to use his fame to attain an influential position at the Rockefeller Foundation to guide and even control developments at a critical time in the process of reforming physician training along truly scientific lines. The fact that modern medical education is often described as “Flexnerian” is evidence of his legacy.
The Carnegie Foundation for the Advancement of Teaching had been created in 1905 through a large endowment from the steel magnate Andrew Carnegie. Its task was to examine the condition of higher education in both the USA and Canada, and suggest improvements in the colleges and universities of both countries. Surveys of the state of professional education in law, medicine, theology and engineering were considered as first steps.

Dissatisfaction at the state of physician training had been growing for some time and was widespread in professional circles in the first decade of the new century. The American Medical Association (AMA) had conducted a survey in 1906, but the discouraging results remained unpublished, partly in fear of offending members.

The AMA sought an independent forum for another survey and approached the Carnegie Foundation to undertake the task.

The President of the Foundation Board, Prof. Henry S. Pritchett, sought a person to compile the report on medical schools. He had become aware of a book called *The American College*, written by Abraham Flexner. The author seemed to have the qualities of rigor, tough-mindedness, and power of expression Pritchett wanted in the report on medical education. Flexner was also interested in a position with the Foundation, and secured a meeting with Pritchett which was satisfactory.

After a period of uncertainty in which he says he feared Pritchett had confused him with his brother Simon, a physician and bacteriologist, Flexner agreed to undertake the study. Pritchett stated that he wanted the medical schools reviewed not by a physician but by an educator, an outsider with a fresh eye and no professional loyalties to prevent the saying of hard truths. Flexner attacked the task with enthusiasm, eagerly reading up on medical education both in theory and in its historical development in North America.

He traveled to Chicago for meetings with AMA staff and to read reports on medical education already prepared but not released. Lastly, he traveled to Baltimore for intensive discussions with Drs. William Welch, Franklin Mall, William Halstead and other faculty at Johns Hopkins on the requirements for modern medical education. He also took counsel with his brother Simon. Thus armed, in 1908 and 1909, he visited every North American medical school. The results of his assessment appeared in *Medical Education in the United States and Canada*, released by the Carnegie Foundation in 1910, as its Bulletin Number Four.
His own educational philosophy, his reading and the discussions at Johns Hopkins brought Abraham Flexner to certain conclusions:

- Medicine had become a science, and doctors in training needed a strong scientific grounding.
- Medical schools must have laboratories of physiology, chemistry, and microbiology and these must be equipped with the latest devices.
- Medical students must themselves see patients with varied illnesses, in considerable numbers at a hospital offering modern diagnostic and treatment facilities. Students must also “do”, not be mere passive recipients of instruction. The sites of instruction and the clinics should not be too far apart physically.
- Faculty must direct the operations of the hospital and must themselves pursue research agendas. They must also be employees on salary, devoted to research and teaching, with no fee-based outside consultations. Flexner called this the “full-time” plan, and he considered it fundamental.
- A medical school should be a part of a full-fledged university and preferably be located in a large urban area, in which patients with a variety of illnesses could easily be found. The university and the medical school should not be geographically separated. He took dim views of departures from these norms.

Prepared by his studies and conversations at Johns Hopkins, Flexner began his visits to each of the 155 medical schools in the US and Canada, visiting 98 cities and conducting 174 reviews.

Flexner queried deans and faculty on these points:

- What were the entrance requirements, and were they enforced?
- How large was the faculty? What training did these instructors have?
- What were the school’s financial resources, and how were they derived?
- What laboratories were available, how were they equipped, and what was the training of the staff?
- What clinical teaching facilities were available to students and where were they located?

Flexner also toured the school’s facilities, asking pointed questions. For each visit, he prepared himself by reviewing the school’s own catalog and the reports it had submitted to the AMA. He noted the condition of classrooms and laboratories and asked about the availability of books and periodicals.

He showed special interest in facilities for dissection, specimen collections or museums, libraries and other learning aids. Not content with official reassurances, Flexner examined the buildings thoroughly. He relied on his senses of sight and, especially, smell, for a true gauge of matters. Putrescence and its odors signified poor management.

Having visited several schools in a row, he would then return to New York to prepare his comments. These he later sent to the Deans, asking for rebuttal or clarification.
Flexner was not easily put off. One evasive and uncooperative dean was strangely unable to find files, records, keys to locked rooms labeled Chemistry or Pharmacology, locate faculty, a student or even the janitor. Flexner asked the dean for a ride to the railroad station, and then returned secretly. He gave five dollars to the (easily found) janitor who opened all the doors, behind which were not the promised laboratories or other facilities, but tables, chairs and a blackboard.

The Carnegie name probably opened a good many doors that otherwise would have remained closed. But any officials expecting a *pro forma* visit from a school teacher, as a preliminary to receiving money, were shocked at the grilling they underwent.

The fact that Abraham Flexner was probably the only man on earth who had actually seen all 155 medical schools in North America gave the assertions in his report great authority.
The document that appeared as the Foundation’s Bulletin Number Four consists of two main parts and a statistical appendix.

**Part I**, of fourteen chapters, is the section devoted to exposition. Flexner makes his case and marshals the evidence for a program of educational reform. One topic is typically discussed per chapter, such as those devoted to history, finances, the role of licensing boards, etc. Some discussions, such as those on the plan of study in the pre-clinical and clinical years, take up two chapters each.

Each chapter is a closely reasoned argument, an effort at persuasion. The Flexner report is anything but a simple presentation of data. It’s a literary and rhetorical composition of a very high order.

**Part II** contains brief, almost short-hand accounts of his visits to all 155 medical schools. Flexner notes: the date of the visit; entrance requirements; faculty; finances; laboratories. He concludes with a brief summary statement.

He is heedless of hurt feelings. Henry Pritchett’s intuition that Flexner had a gift for bare-knuckled prose and direct, effective phrasing was correct.

When he was outraged at what he found he said so plainly. By contrast, what might seem relatively weak words of approval such as “well kept” or “in good condition” are expressions of high praise.

*Chapter X* has an oddly familiar tone, as Flexner discusses the status and future of instruction in homeopathy, osteopathy, and “eclectic” practice. The judgments are, unsurprisingly, quite severe.

*Chapter IX*, “Reconstruction”, explains Flexner’s suggestions for a restructuring of medical education in the USA and Canada. It also includes a map of the two countries, one showing the distribution of medical schools existing in 1910 and the other his revisions. Flexner’s plan called for a drastic reduction in overall numbers from 155 to 31 institutions.
The overall picture was bleak. A few medical schools were excellent, some were good and more had promise. But, many were in shocking conditions of backwardness and disarray.

A large number of medical schools were proprietary in character, owned by their faculties and run as commercial enterprises. Entrance requirements varied in rigor, but were often low and even then waived if candidates could pay the fees. Graduation requirements could be equally casual.

These schools produced too many doctors for the nation’s needs. This overproduction depressed the status of medicine as a profession and career choice. Small communities which could support one or two doctors easily, often had many more.

The graduates of these schools were in many cases woefully undertrained and ignorant by modern scientific standards. Instruction was based on lecture and on memorization of lists and compendia. Very few schools had adequate laboratory space or equipment, and a large number had none at all. Even anatomical dissection was neglected, much less instruction in chemistry, physiology, bacteriology, or pathology, the very sciences that had transformed medicine in the previous 50 years. Adequate libraries, reading rooms, or museums were seldom found.

Too few schools had financial resources sufficient to support outlays for modern medical education such as laboratories, equipment or staff.

Connections to teaching hospitals were weak and the status of the school’s faculty in them uncertain. Clinical experience could be lopsided: heavy on surgical cases and almost non-existent in other areas. A number of the hospitals specifically excluded students from patient contact.

**Flexner’s Argument**

The conclusions of the Flexner report can be stated in a kind of extended argument:

The nation wanted, and had a right to expect, modern scientific medical education.

BUT, such education had certain irreducible requirements such as high entrance requirements, modern laboratories, and large, well-equipped hospitals.

Any school unable to supply these requirements had to close voluntarily, merge with a stronger one, or be shut down.

BUT, many American medical schools had absolutely no chance of meeting these irreducible requirements.

THEREFORE, many American medical schools had to close voluntarily, merge with a stronger one or be shut down.

Those remaining had to adopt the Johns Hopkins model:

- strict entrance requirements;
- four-year curriculum, with strong scientific content;
- abundant patient contact, with active learning;
- hospital controlled by the faculty, serving as its staff; and,
- a program of productive research by faculty investigators.

Flexner knew this state of affairs couldn’t be achieved all at once and everywhere, but it had to be the goal.
In his autobiography, Flexner states that the publication of the report “produced an immediate and profound sensation” and that the “medical profession and the faculties of the medical schools, as well as the state boards of examiners, were absolutely flabbergasted by the pitiless exposure.”

Some reactions to the study were extreme. Flexner was sued, received death threats, and was warned never to return to Chicago or he would be shot. He went anyway.

Many weaker schools drew their own conclusions and closed voluntarily. By 1915, the number of medical schools had declined to under one hundred. By 1920, eighty-five remained, and by 1930 sixty-six. The reluctance of licensing boards to recognize graduates of poor schools accelerated the decline.

Requirements for entrance to medical schools were gradually raised to mandate the undergraduate degree. The medical school curriculum was extended to the now familiar four-year period with strong laboratory science content and varied patient care opportunities.

Oddly, one consequence of the report was that Andrew Carnegie refused to fund any further projects in medical education. He told Flexner: “You have demonstrated that medical education is a business. I will not endow any other man’s business.”

The Rockefeller Foundation, through its General Education Board, began to assume the role of benefactor in efforts to restructure medical education. In 1913, Flexner was recruited to help the Board in its decisions. He approached John D. Rockefeller, Sr. with a request for $50 million, which was approved, and he raised large sums from other benefactors. From 1913 to 1928, the Board deferred to him on almost all matters relating to medical education, and he exercised enormous influence through the granting or denial of Foundation awards largely on his own authority. The Board rarely questioned his decisions.

One consequence of these changes was that the choice of a medical career became restricted to those who could finance from private means both an undergraduate education and costs of medical school itself, a mainly white, male and upper middle class segment of the population.

Medical education for African-Americans was severely curtailed. Only two of the seven African-American schools open in 1910 survived, Meharry and Howard. Flexner sought extra resources for both, and fought an AMA move to downgrade Meharry to “B” status. Later in life, he chaired a large fund-raising campaign for Meharry, and served on Howard’s Board of Directors.

Flexner became convinced that no disabilities attended the entrance of women into medicine, because any woman could apply to and enter any medical school on her own merit and talents which would be recognized. Special institutions for the medical education of women were not necessary and should be closed. His judgment on this point was optimistic.

Today the Flexner report is viewed less as a lightning strike from a cloudless sky than as the crystallization at the most favorable moment of trends and tendencies that had been gathering strength for some time. The report was at once a diagnosis, an indictment and a plan for moving forward. By putting matters in the starkest terms, it focused national attention on the training of physicians. It left little room for evasion or compromise, saying: “This is what’s happening, and it can’t go on. This is what needs to be done. There is no other way”. Abraham Flexner’s personal good fortune was not merely to have shown what was wrong, but to find himself in a position, from which he could influence the process of correcting it.
In November, 1909 Abraham Flexner visited the Medical Department of the University of Texas, in Galveston. His report gave the medical school a favorable review. He was especially impressed by these things:

- Entrance requirements were strictly enforced;
- All faculty were salaried and fully engaged with the school;
- There were numerous, well-equipped laboratories for the sciences;
- A large anatomical museum supported teaching;
- The collection of pathology specimens was impressive and well organized;
- A large teaching hospital was close by, and run on “sound lines;” and
- The library was good, with regular subscriptions to scientific journals.

By Flexner’s own benchmarks, the school at Galveston was doing very well. When compared to some of the horrors he had already visited, it was almost exemplary.

However, there were certain areas of concern:

- The “dispensary” or free clinic was inadequately staffed;
- There was no research program; and
- Separation from the main university’s campus was a weakness. Flexner called the location of the medical school at Galveston “a regrettable mischance”. Isolation from the stimulus of the university was an invitation to slip into an “unproductive groove”. He hoped the decision would be reversed.
The Dean of the Medical Department, Dr. W.S. Carter, the faculty and the Regents of the University of Texas were pleased at the favorable review of the Medical Department in the Flexner report.

In a letter to Dr. E.S. Mezes, University of Texas President, Dean Carter noted some errors of fact in the Flexner evaluation of the Medical Department:

- The city’s population was in fact higher than stated in the report (Dr. Carter said that the true figure was 38,850 vs. Flexner’s 34,355); and
- There were five full-time professors on the staff, not three as noted. These were in Anatomy, Physiology, Chemistry, Pathology and Pharmacy.
Critical comments about the clinic staffing were said by the Dean to be “most valued and constructive criticism”, but no funds then existed for additional personnel. In time, Dr. Carter added new clinic facilities or expanded existing ones.

Flexner’s comment on the lack of a research program was significant. Dr. Carter called it “the most serious criticism” but said it was “eminently just.” Previously Dean Allen J. Smith had urged research in diseases of the tropics and subtropics, and some studies on other topics had actually been completed and published. Dean Carter gradually hired researchers to chair the Bacteriology, Biochemistry and Pharmacology Departments, which boded well for stronger research efforts.
Practical considerations made a relocation of the Medical Department to Austin impossible. Dean Carter noted that no benefactor or other funding source was willing to build both a teaching facility and a large hospital there. In any case, the state Constitution required an election on such a move. The question of relocating the medical school would arise repeatedly in the institution’s history, with zealous partisans on each side.

Of the report’s three criticisms, Medical Department officials themselves could address only two. With patience and persistence, Dean Carter responded to both.

As a result of the Flexner visit, the Medical Department’s reputation was greatly enhanced, UT Regents were gratified at the institution’s standing, and 25 years after its foundation, the University of Texas’s medical school was considered among the best in the nation.
Born in Still Valley, NJ and educated at Easton High School in Pennsylvania, he received the MD degree from the University of Pennsylvania, in 1891.

Dr. Carter worked in various positions at Philadelphia area hospitals, and as demonstrator in physiology at the University of Pennsylvania.

In 1897, he was appointed Professor of Physiology and Hygiene at the University of Texas Medical Department in Galveston, where he established one of the first physiology laboratories in the South.

In 1903, he was appointed Dean, and for the next two decades he nurtured the institution’s growth. In the course of his tenure he established the Pharmacology Department, added an isolation ward to the hospital’s main structure, and cooperated with the Texas Public Health Association in the location of a hospital for children in Galveston.

Dr. Carter was Dean during the evaluation visit by Abraham Flexner, and worked to implement the institutional response addressing the report’s observation about the lack of a research program at the school.

In 1913, the Medical Department became a member of the Association of American Medical Colleges, partly due to the high rating in the Flexner report. Dean Carter was elected Vice-President in 1916, and in 1917, president.

1922 saw his departure from Galveston for a staff position with the Rockefeller Foundation Division of Medical Sciences. The next year he became the Division’s director.

For more than a decade Dr. Carter traveled extensively throughout the Pacific realm, advising on the organization of medical education efforts in Oceania, China, India, Australia and the Philippines, at that time an American possession. In 1925, he was acting Dean for the famous Peking Union Medical College, the organization of which occupied many of the prominent figures in American medicine at the time. The next year he went to India, then a British Dominion, to review medical needs there.

Dr. Carter retired in 1934 but returned to Galveston as Dean the same year and served in that position until 1938, when he resigned and entered private life. Dr. Carter died at his home in Massachusetts in 1944.
Dr. Keiller was the only Medical Department faculty member mentioned by name in the Flexner report. His anatomical museum was the subject of approving comment in the review because the specimens were “admirably arranged for teaching use”.

In another section of the report, Flexner attacks the unscholarly attitude prevalent in proprietary medical schools by saying “the conclusive evidence of lack of educational conscience or pride is the general absence of a decent museum”, and contrasts this lack with honorable exceptions: “the excellent collections made by Souchon at Tulane and by Keiller at Galveston”.

William Keiller was born in 1861 Auchindinny, Edinburghshire, Scotland, and attended the Montrose Academy and the University of Edinburgh, where he studied art. He became interested in anatomy and on conclusion of his program, began to study medicine with faculty in Edinburgh and Glasgow. After graduation, he held various clinical and teaching posts, and was elected a fellow of the Royal College of Surgeons, Edinburgh in 1890.

In 1891, he read an item in a medical journal stating that a Professor of Anatomy was sought for the medical school in Galveston, Texas. He applied, was accepted and arrived in Galveston that same year, remaining with the medical school for the next forty years, as Professor, and from 1922-26, as Dean.

Dr. Keiller’s research interests were varied. He introduced the use of formalin for preservation of cadavers, and was a pioneer in the study of local anesthesia. Considered a gifted lecturer, Dr. Keiller used his art training to full advantage in demonstrating anatomical structures and relationships in sketches and drawings of great accuracy and clarity. These were greatly prized by his students.

He wrote an influential monograph, *Nerve Tracts of the Brain and Cord* in 1927, and had contributed extensively to the *Textbook on Anatomy* in 1899. He wrote numerous articles in professional journals. Afflicted with tuberculosis, Dr. Keiller died in 1931.
The publication of the Flexner report was a landmark event in the history of medical education in America. Anyone studying this document today, and the way it came to be written, has to be impressed by several things.

The first is the character of Abraham Flexner himself, which is not easy to sum up neatly. He was ambitious, prickly and famously quarrelsome, but also considerate and loyal. He easily formed strong, lasting friendships and also made life-long enemies. What he thought was adherence to principle others regarded as stubbornness and rigidity. This was especially so in his insistence on the “full-time plan”; an arrangement by which faculty would be salaried and not allowed to earn fees from private consultations with patients.

He placed a high value on his family’s welfare, aided his wife in her career as a dramatist and helped his two daughters become independent women. Many thought him arrogant, but others felt he was fundamentally shy. Cocksure and irritatingly self-confident, he had a strong sense of personal responsibility, civic duty and commitment to causes. He could be patient, persistent and charming, but also abrupt and dismissive. He dealt easily with billionaires as he convinced them how to spend their money, but he answered, often at length, letters from almost anyone seeking his advice. Some of this correspondence, with persons of no great fame or possible advantage to him, lasted for years. Highly intelligent, well-read, curious, especially about educational concerns, his mind was at home in a spectrum that ran from grammar school mathematics, through medical education, to theoretical physics. He approached his work with energy and zeal. He was rarely without some serious occupation, and he was never, ever idle.

Flexner’s style was an important factor in the success of the report. It’s hard to imagine a document on the condition of medical education being funny, but the report is exactly that in many places. He assimilated large amounts of information and formed it all into an intelligible and convincing whole that was also comprehensible to the general reader. While contemporaries enjoyed reading the more slashing evaluations of sub-par medical schools, the report was a serious study, each chapter being an argument and the total pointing inexorably to one conclusion. Moreover, his having personally visited every medical school in both countries gave his judgments an “I was there, and I saw it” authority difficult to counter.
In the genesis of the Flexner report the role of sheer good luck is impressive. The proponents of reform in medical education were very lucky to have found Abraham Flexner as the author of their report, because he would give them, in the modern idiom, a blockbuster. They were lucky too, in that the country was ready for something of this sort. It was the age of Reform movements and a Progressive agenda. Laws to restrict child labor, curb corporate power, clear slums and protect society from dangerous and adulterated food products were passed with broad public support.

But Flexner was lucky himself, in that he was selected for his task by Henry S. Pritchett, a remarkably able and intelligent man, whose own accomplishments were considerable, and that he worked as an agent of the Carnegie Foundation. He was lucky too in that he was briefed by members of that uncommonly gifted and influential circle of extraordinary talents who were re-making American medicine from the newly founded medical school at Johns Hopkins: William Welch, William Halsted, Franklin Mall, Simon Flexner and others. But Flexner amazed them with his zealous self-study and speed and thoroughness in learning, indeed mastering the principles of modern physician training. He not only kept up with his tutors, he began to edge ahead. Hesitations about his suitability for the task vanished. Mall was originally doubtful both about the survey and about Flexner, but he was won over and become convinced that it all could be done and that this was the man to do it. He helped Flexner unstintingly and the two become lifelong friends. The Carnegie Foundation report would be a success because Flexner had been transformed and had transformed himself, into a thoroughly prepared Grand Inquisitor of medical education.

F. Scott Fitzgerald remarked that “there are no second acts in American lives”. Abraham Flexner not only had a brilliant second act, but a third as well. The critical need to reform medical education was made plain just at the time when owners of vast fortunes were exploring ways to divest themselves of much of their wealth and direct it to a social purpose. At a time when something needed to be done, wealthy people were seeking something worthy and useful to do. The fame resulting from the publication of the report brought Flexner to the attention of the Rockefeller philanthropies, which offered him a position on their General Education Board. Flexner was able to obtain very large sums from the Rockefellers and raise additional funds from other benefactors. He also encouraged any school awarded a grant to raise at least the equal amount on its own.
Over the course of his life, he helped in fund raising activity for education of all types in excess of $600 million, a simply stupendous sum in that time, and much of that went to the reconfiguration of medical education. He not only raised the money, he determined how it would be spent. For years, the General Education Board deferred to him on almost all medical topics, and his decisions were final. This power enabled him to direct support to those institutions willing to implement the practices he thought necessary for modern medical education.

Within two decades, American medicine would be dragged from its backwater status and launched onto a path that would lead to world pre-eminence. The mechanism was the transfer of enormous private wealth to a social purpose, a process guided in the crucial initial stages by this one man. Any appreciation of Abraham Flexner that stops with a view of him as a curriculum reformer misses the mark. His real legacy is the American medical school, with its labs, wards and clinics, its research agenda, its high entrance requirements and careful selection of students. He is commemorated in the same way as is Sir Christopher Wren, the architect of St. Paul’s cathedral in London. An inscription in the floor of the nave says: “If you seek his monument, look around you”.
The population in 1910 was 92,000,000. Life expectancy was about 48.5 years for men and 52 years for women.

The energy economy was based on coal. It was dirty, polluting and produced large quantities of ash which had to be removed.

In 1900, the Galveston hurricane left 6,000 dead.

San Francisco suffered the Great Earthquake and Fire in 1906.

In the decade 1900-10, the major causes of death were cardiovascular diseases, tuberculosis, influenza/pneumonia and cancer.

Henry Ford would launch the first moving assembly line for automobiles in 1914. In 1910, about 500,000 cars were registered in the USA.

More than 1500 people would perish in the loss of the TITANIC in 1912.

The nation was shocked by exposés of unsafe conditions in industry and of abuse of power by corporations made by “Muckrakers”: Upton Sinclair, Ida Tarbell, S.S. McClure, and others.

There was widespread labor unrest, with strikes, boycotts and lockouts. Some of these events turned violent. An American Socialist Party was growing, as was the more radical Industrial Workers of the World (IWW).

Progressive-era reforms were undertaken to protect citizenry against dangerous products. The Pure Food and Drug Act was passed by Congress in 1906.

The Panama Canal would open in 1914.

Oil, refined into kerosene, was used mainly for lighting; there was small demand for it as a fuel.

Nobel prizes in Physiology/Medicine were awarded to von Behring (1901), Pavlov (1904), Koch (1905), Golgi and Ramon y Cajal (1906), Mechnikoff and Ehrlich (1909).

Large areas of Africa and Asia were ruled directly from London or Paris. Belgium governed the Congo, and Holland the Dutch East Indies, now Indonesia. Portugal ruled Angola and Mozambique in Africa.

President Roosevelt mediated a peace agreement to end the Russo-Japanese War of 1904-5. He won the Nobel Peace Prize, but caused resentment in Japan which felt cheated of its gains due to his alleged bias toward Russia.

The German Empire, the Austro-Hungarian Empire, the Russian Empire and the Ottoman Empire were the major powers in continental Europe, as was France, a republic. In 1914 all these nations would be at war, and by 1920 all four empires would be gone. The United States would enter the war in 1917, and emerge as a world power.
The United States in 1910 – panel 15 photo descriptions

The Wright Brothers made their first flight in 1903.

The USA was “unfinished”. Arizona and New Mexico would join the union in 1912. Oklahoma had entered only in 1907. Alaska and Hawaii wouldn’t become states until 1959. As a result of the Spanish-American War in 1898, the Philippine Islands became an American dependency, as did Puerto Rico and Guam.

Railroads were the primary means of travel and shipment of freight.

In 1907, President Theodore Roosevelt dispatched sixteen battleships of the Atlantic Fleet on a good will voyage around the world.
**William H. Welch (1850–1934)**

Born in Connecticut to a family of doctors, Welch earned his medical degree at Columbia and interned at Bellevue Hospital, where he learned about Virchow’s work in pathology. He went to Germany for training under von Recklinghausen and Cohnheim, who recommended him for the chair of pathology at the new Johns Hopkins University medical school. Welch later became dean there, exercising great influence on American medicine.

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**Henry S. Pritchett (1857–1939)**

Born in Missouri, and educated in his father’s school. At 18, he went to Washington to work at the Naval Observatory. Later, he taught astronomy at Washington University, St. Louis. Pritchett directed the US Coast and Geodetic Survey. In 1901 he was named the first president of MIT and in 1905 first President of the Carnegie Foundation for the Advancement of Teaching. He helped to reorganize the Teachers Insurance Annuity

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**Andrew Carnegie (1835–1919)**

Born in Scotland, the steel tycoon became one of America’s richest men and devoted his later life to philanthropy. He endowed almost 3,000 public libraries throughout the USA, Canada and Great Britain. Carnegie established the foundation for improving education which commissioned the Flexner study.
Simon Flexner (1863-1946)

Abraham’s older brother was an indifferent student until a near-fatal brush with typhoid fever caused him to reassess his life. He began an intense program of personal study, bought a microscope and became highly skilled in its use. With an MD degree from the University of Louisville, at his brother Abraham’s urging, Simon enrolled in a course in pathology under Welch, who was impressed at his skill and diligence. Welch added him to his staff and arranged for study in Germany. On Simon’s return, Welch confided the operation of the pathology laboratory to his direction. The two cooperated on numerous studies and published many papers. In 1899 Simon was appointed professor of pathology at the University of Pennsylvania and in 1901, director of laboratories for the Rockefeller Institute. In 1924 he became director of the entire Institute. The brothers were very close and discussed professional and personal concerns at length and in detail.

Franklin Mall (1862-1917)

Born in Iowa to German immigrant parents, Mall obtained his medical degree from the University of Michigan in 1883. He went to Germany for study in Heidelberg, and the following year in Leipzig under Wilhelm His. On his return to the USA, Mall began to work under Welch at Johns Hopkins. After brief periods at other schools, Mall returned to Baltimore in 1893. Embryology and anatomy were the fields in which he made great contributions, but he was also interested in medical education. Initially wary of the medical school survey, discussions with Flexner changed his mind, and he cooperated enthusiastically in the briefings. Flexner was deeply grateful for the assistance and the two formed a friendship that lasted until Mall’s death.
William Halsted (1852-1922)

A New Yorker, son of prosperous parents, Halsted was a fine athlete but a poor student until his senior year at Yale, when he bought Gray’s Anatomy and Dalton’s Physiology. He graduated from Columbia with the MD degree in 1877, and the next year began a period of study in German-speaking medical centers, but mostly in Vienna. He returned to the USA in 1880 and began an active career as a surgeon. Experiments with cocaine as an anesthetic led to his addiction, and efforts to cure this brought on a morphine addiction as well. His performance suffered and he was largely disgraced. His friend, Welch whom he had met in Germany, brought him to Baltimore and set him to work, carefully supervised. He was able to overcome the cocaine problem, but the morphine addiction remained. Halsted realized that anesthesia and antisepsis relieved the surgeon of the need for haste. His operations were slow, thoroughly planned and sought to minimize blood loss and tissue damage by careful suturing. Halsted was a pioneer in the introduction of surgical gloves to the operating room.
**Glass Cases**

**William Keiller Microscope**

This instrument has all the features of a late 19th-century Continental microscope. It was purchased by Dr. William Keiller (1861-1931) in Edinburgh, Scotland, prior to his appointment in 1891 as the first professor of Anatomy at the Medical Department. It comes with a wooden carrying case and a number of lenses. Dated to about 1890, it is signed by the maker: E. Leitz Wetzlar no 17327. Dr. Keiller’s name is also engraved on the back, just above the base and the Leitz signature.

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**The Medical Department on Postcards**

The first decade of the 20th century was at a time when postcards were at their most popular; one could send a card in the morning and the recipient in town would have it by the afternoon. Major public buildings were considered a source of pride in communities of every size across the country and were often the subject of postcards. Hospitals and medical schools were also commonly depicted. Here are selections of the two buildings which comprised the Medical Department campus in 1910, the Medical School Building and the original John Sealy Hospital. Both structures were designed by Galveston’s master architect of the late 19th century, Nicholas J. Clayton. The Hospital opened in January 1890 and the Medical School Building, now affectionately called “Old Red,” in October 1891. The postcards have been enlarged so that the detail of the image as well as the messages may be seen. On the card of the original hospital, a reference is made to where the patient was in the hospital and on the front the place, just to the left of the entrance, is marked with an “X.”

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**School of Medicine Catalog**

UTMB has produced a School of Medicine Catalog each year since 1892. They contain a wealth of information about the institution through its long history. Each catalog included a brief history of the Medical Department and its amenities as well as such information as class descriptions and professors listed for the courses, class schedules, lists of textbooks of required reading as well as their costs, information about room and board was enumerated. They also note the types of medical cases treated in John Sealy Hospital and lists of graduates from the previous year. The School of Nursing catalog was also part of this catalog and contained much the same information for nursing students of the day. The catalog for 1909-10 is opened to the introduction where it is noted that the School was beginning its 20th session.
**Violet Hannah Keiller**

Violet Hannah Keiller was born in 1887 in Edinburgh, Scotland. She emigrated to Texas with her family in 1891 when her father, Dr. William Keiller, became the first Professor of Anatomy at the new medical school in Galveston. During her senior year at UTMB, she was Secretary-Treasurer of her class.

After graduation, she did not complete a typical internship, but became an assistant to Dr. James E. Thompson, the School’s first Professor of Surgery. Later, she became an Instructor in Surgical Pathology. In 1927, Dr. Keiller moved to Houston and was a pathologist at Hermann Hospital, specializing in the diagnosis of cancer. She continued to teach both in Galveston and at Baylor College of Medicine in Houston. Dr. Keiller eventually became Chief Pathologist at Hermann.

After retiring in 1953, she remained as a consultant at Hermann and at the University of Texas M.D. Anderson Hospital and Tumor Center. She continued serving as Emeritus Professor at Baylor, until close to her death in 1958 in Houston.

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**Medical Department Library**

At the time of Abraham Flexner’s visit, the Library was housed in the Medical School Building on the east end of the first floor. Opened for study from 8 a.m. to noon and from 2 p.m. to 5 p.m., the reading room was described as “large” and “very well lighted.” The Library held the most important medical textbooks, books of general reference and the most current American and foreign medical journals.

The School Catalog stated that the Library included 7,194 volumes and 560 pamphlets. The Board of Regents appropriated $1,000.00 that school year for the addition of more texts and additions to journals. At that time, the books were classified according to the Dewey System. While other physicians could use the materials within the Library, the privilege of withdrawing books was limited to those connected with the School. The Librarian was Miss Addie Hill.

On display here are three texts that were required reading for third and fourth year medical students, and would have been found on the shelves. Of the Medical Department Library, Flexner wrote “once more it is pleasant to record exceptions. A good library, excellently administered, is to be found at Jefferson, at Buffalo, and at Galveston.”
John Sealy Hospital Training School for Nurses

For nurses, classroom activities included lecture, recitations and demonstrations. Typical for nursing education at that time, instruction in the “theoretical” aspect was performed by physicians, while the practical instruction was done by the Superintendent of the School and head nurses of the wards. Most student learning occurred at bedside, since classroom instruction was limited to several hours per week.

John Sealy Hospital, like all others in the early 20th century, was staffed almost entirely by pupil nurses. They received a $7.00 per month stipend for uniforms and textbooks which was considered compensation for their service to the hospital by the training they received under the supervision of the superintendent and head nurse. Students worked from 7 a.m. to 7 p.m., with one free afternoon each week. They wore a prescribed uniform and were required to live in the nurses’ residence and abide by rules of conduct of personal behavior as well as behavior on duty. The profession placed women squarely in the public eye, and the prescriptions for dress and behavior were designed to legitimate nursing as a valuable service to the public and as respectable work for women.

The John Sealy Hospital Training School kept pace with the progress of nursing education. In 1907, the course of study was extended from two to three years to encompass the increasing body of knowledge and skill required of graduate nurses. Shown here are nurses from the Training School from time of the Flexner Report.

Laboratory Exercises in Physiology
by William S. Carter, 1908

William Carter not only served the Medical Department (and later the Medical Branch) as Dean twice, he was a professor of physiology and taught for 25 years. During this time, he established one of the first physiology in the south also taught hygiene and public health. In 1904, he introduced a course in pharmacodynamics. Dr. Carter published Laboratory Exercises “arranged for the use of medical students” in 1908.
Nerve Tracts of the Brain and Cord  
by William Keiller, 1927

The Medical Department’s first professor of Anatomy and Dean from 1922 to 1928 taught anatomy and specialized in neuroanatomy. He pioneered the use of formalin for preserving bodies for dissection, pioneered the use of local anesthetics—even having his appendix removed under local anesthesia and returning to teaching a short time after. In 1927, he published this work in his specialization. The copy on display belonged to Dr. Harry O. Knight, who succeeded Keiller as professor of Anatomy. It bears a dedication to him from the author.

Seidlitz Powder

The Seidlitz Powder was a favorite remedy from the 19th and into the 20th century. It was used for many problems including sour stomach, seasickness, heartburn, and headache. Below is the method of preparation for the pharmacist.

- Bicarbonate of Soda in fine powder a troy ounce, Rochelle Salt in fine powder 3 troy ounces, Tartaric Acid in fine powder 420 grains.
- Mix intimately the Bicarbonate of Soda with the Rochelle Salt and divide this mixture into 12 equal parts.
- Then divide the Tartaric Acid into the same number of equal parts.
- Lastly keep the parts severally, of the mixture and of the acid in separate papers of different colors.
- Each powder is dissolved separately with a bit of water and mixed together gradually and flavored with syrup of ginger, orange peel or lemon.
**Surgical Tools of Dr. James Thompson**

On display here are a few of the surgical tools which belonged to James E. Thompson, the first professor of surgery of the Medical Department, a post at which he remained for 26 years. As had Dr. Keiller, Dr. Thompson learned of the position at the new medical school through an advertisement in the British Medical Journal. He was extremely well educated, obtaining both a Bachelor of Medicine and Bachelor of Surgery from London University and completing postgraduate work in London and Vienna. In 1888, he became a fellow of the Royal College of Surgeons.

It is said that Dr. Thompson brought modern surgery to Texas and his operations for cleft lip and cleft palate were classics in plastic surgery. He was the first physician in Texas to limit his practice to surgery and became the first president and one of the principal organizers of the Texas Surgical Society.

The surgical tools were donated to the Library by the Thompson family.
May Agness Hopkins

Born in 1884, in Austin, Texas, May Agness Hopkins attended The University of Texas and received a BS degree before enrolling at the medical school. While in training, she served as a Fellow in Histology under Dr. Marie Charlotte Schaefer. Dr. Hopkins was the first woman ever elected to full membership into Alpha Kappa Kappa, the medical school’s all male fraternity. In 1911, she received her MD degree, and was the only woman to graduate that year.

After leaving Galveston, she served as an intern at the New England Hospital for Women and Children in Boston, and then the Warren State Hospital in Pennsylvania where she was a resident physician. She moved to Dallas in 1912 and became the first woman physician to open a downtown practice there.

When World War I began, Dr. Hopkins volunteered in the Red Cross Children’s Bureau, and was deployed to France but was almost immediately sent to the First United States Army where she treated soldiers at the front. Later, she was made chief of the southern zone of the American Red Cross, where she established children’s hospitals and cared for repatriated children of the war.

She returned to Dallas in 1922 and during her long career in pediatrics and teaching served as an Associate Professor of Pediatrics at Baylor College of Medicine before its move, and as Emeritus Professor of Pediatrics at The University of Texas Southwestern Medical School at Dallas. Dr. Hopkins later practiced endocrinology and was one of the first members of the Endocrine Society. After almost 60 years of practice, Dr. Hopkins died in Dallas in 1972. The pins on display here are from her years the University of Texas and the Medical Department as well as her glass paperweight donated by her family.
**Descriptions**

*Map I*: Showing the Actual Number, Location, and Distribution of Medical Schools.
- Complete School.
  + Half-School.

*Map II*: Showing the Suggested Number, Location, and Distribution of Medical Schools.
- Complete School.
  + Half-School.