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## Tappan's Vision...

### Introduction

*Introduction written by the Director of the Bentley Historical Library, Dr. Francis X. Blouin Jr., text by James Tobin.*

In 1850 Michigan adopted a new constitution which among other things more clearly defined the University of Michigan in Ann Arbor as an autonomous state institution governed by an elected board of regents. In 1851 the newly constituted board chose Henry Phillip Tappan as the first president under this new plan. Tappan's contributions to the university form the foundation for the greatness that the University would achieve in its subsequent decades.

Tappan arrived in Ann Arbor in 1852 and delivered his inaugural speech as president on December 21st of that year. The Speech represents what we would call today a "vision statement" of what a university can be. Tappan in a 52 page oration gazed far into the future and saw a university that would explore all branches of theoretical knowledge, all aspects of applied science, all manner of the arts, and all of professional education. He spoke of having the proper materials for education envisioning great libraries, laboratories, and museums. And, all this would be accessible to all citizens regardless of rank, position, or wealth. It would take time for the university to truly realize his vision, but remarkably little time.



View of campus from the east, ca 1854

By the 1920's all elements of Tappan's vision were in place on the campus. The University of Michigan was among a handful of major institutions of higher education in America that were active not only in teaching but also in shaping the content of what constituted the disciplinary categories of advanced knowledge. In that respect the Tappan speech, so ambitious in its goals, still remains a guiding force in the continuing development of teaching, research, and service on campus.

The exhibition reproduced here explores elements of the Tappan inaugural address and shows how the vision was realized through a series of very important faculty appointments.

***This exhibit is on display permanently in the Bentley Historical Library's Whiting Room. It was converted to an online exhibit in September of 2011 by Jessica Hanes.***

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## Tappan's Vision - Panel 1

**"A university embraces all possible means for making new investigations, and thus advancing knowledge."** - Henry P. Tappan

Until the mid-1800s, America's private colleges primarily served the needs of Protestant denominations and were governed by the intellectual authority of faith. Under President Tappan, the curriculum at Michigan began to reflect the advance of scientific thought and the fading of religious authority in higher education.

### Henry P. Tappan

In the summer of 1852, the latest in a long string of transplanted New Yorkers arrived in Michigan and made his way to Ann Arbor. Of all the newcomers to the little college town, he would leave perhaps the largest mark.

He was Henry Philip Tappan, a philosopher and pastor newly appointed as the first president of the University of Michigan. (The tiny faculty had overseen the school's affairs on their own for the first dozen years in Ann Arbor.) In Europe, Tappan had been deeply impressed by the Prussian and German education systems, especially their devotion to universities as great engines of knowledge and progress. Now he yearned to build an American university on the Prussian model in this young western state.

In his remarkable inaugural address, Tappan sketched a grand vision. The University of Michigan, he urged, must become the pinnacle of a reformed system of public

education. It would teach and train students, but just as important, it would nurture the advancement of knowledge in every imaginable field, from the most esoteric to the most practical. By so doing it would advance a distinctly American civilization, yet also establish the United States as a full participant in the learned conversation of all peoples.

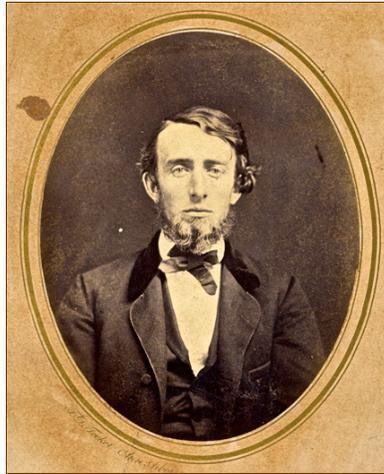
**"We cannot entail estates in our country to our legal heirs," he said. "But an estate might be entailed in a great University as long as our country shall exist--a splendid beneficence, a monument worthy of the ambition of any man, or of any number of men who would lay the foundation and the cornerstones thereof."**

In eleven years as president, Tappan would make only a beginning. The realization of his vision became the work of generations. Of course he could not foresee the vast transformations of the coming age--transformations that were stimulated and shaped by the very pursuit of knowledge that he championed. But we can read his inaugural address now as a remarkable prophecy, a map of the University of Michigan's journey to its place among a handful of universities that have shaped what and how we know.



Of course no small exhibit can do justice to the enormous breadth of the University's achievements and aims. We have selected highlights from only one central thread--its role in the architecture of knowledge as evidenced in the development of the academic disciplines. That development has been chiefly the business of the faculty, and the faculty, until recent decades, has consisted almost exclusively of white males. At Michigan and elsewhere, the ideal of inclusiveness and the richness of diverse perspectives have influenced academic discourse only in recent decades. The University's next century will more fully reflect that ideal and that richness.

### HISTORY: Andrew Dickson White



One harbinger of this broad shift was young Andrew Dickson White (1832-1918), appointed to the faculty as professor of history in 1857. He remained at Michigan for five years, then returned east, where he became the founding president of Cornell University. Drawing on his research at Michigan, White gave a seminal lecture in 1869 titled "The Battle-Fields of Science," in which he purported to show the harm done when religious forces interfered with the advance of scientific knowledge. Over the next 30 years he refined his analysis, expanding his case studies to include nearly

every field of science throughout the history of Christianity, but he narrowed his target from "religion" to "ecclesiasticism" to "dogmatic theology." Religious opposition to science, he showed, was not merely a matter of faith but an intrinsically epistemological challenge to scientific reasoning.

**"In all modern history, interference with science in the supposed interest of religion, no matter how conscientious such interference may have been, has resulted in the direst result both to religion and to science... And, on the other hand, all untrammelled scientific investigation...has invariably resulted in the highest good of religion and of science."** -- From: Andrew Dickson White "The Warfare of Science" (1877), a lecture White developed in Ann Arbor

### NATURAL HISTORY: Alexander Winchell

Alexander Winchell (1824-1891), a devout Methodist, struggled to reconcile emerging scientific insights with his traditional understanding of the origins of humankind. In the process, he became a major interpreter of science to many Americans engaged in the same intellectual struggle. Winchell arrived at Michigan in 1853 as professor of physics and civil engineering, then shifted in 1855 to geology, zoology and botany (and later paleontology). A prodigious writer and lecturer, he began his career exploring natural history from a biblical perspective, as his early titles indicate--*Theologico-Geology*,



*or, The Teachings of Scripture Illustrated by the Conformation of the Earth's Crust*, and *Voices from Nature: Creation the Work of One Intelligence and Not the Product of Physical Forces*. But his deepening study of geology persuaded him the earth was far older than a conventional understanding of the Bible implied. When archaeological discoveries suggested that humanity, too, was older, Winchell

suggested that Adam had not been the first human--a startling proposal to a civilization reared on a historical consciousness rooted in Genesis.

**"...the old hypothesis of the descent of the Black races from Ham is equally unscriptural and unscientific. ...Who, then, were the first men?"** -- From: Alexander Winchell *Pre-Adamites: A Demonstration of the Existence of Men Before Adam* (1880)

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## Tappan's Vision - Panel 2

**"...can we truly be called a nation if we cannot possess within ourselves the sources of a literary, scientific and artistic life?"** - Henry P. Tappan

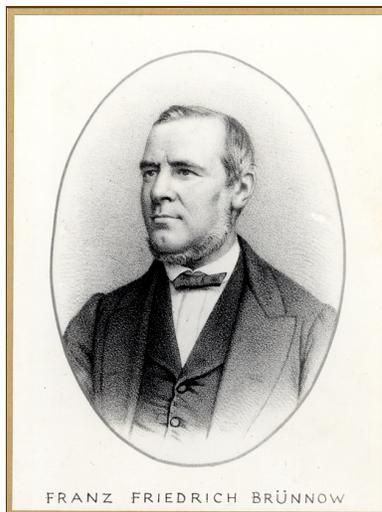
Tappan had called his ideal university a "shop of the nine muses," for the nine Greek goddesses who inspired all the arts. But the pursuit of knowledge was proceeding so vigorously that essential disciplines soon numbered far more than nine.

Traditional courses of study were splitting into hardy new branches, and wholly new inquiries were sprouting from old soil.

Michigan was one of just a few American universities where all these new intellectual endeavors flourished and new disciplines were defined.



## ASTRONOMY: Franz Brünnow



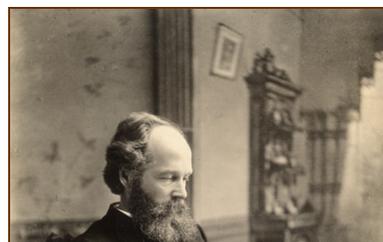
Before the Civil War, American astronomers were amateur "star-gazers" who had done little to advance knowledge of the heavens. Franz Brünnow (1821-1891) was among those who made the study of the cosmos an advanced science. A graduate of the University of Berlin, Brünnow worked at the Berlin Observatory under J. F. Encke, an important student of comets. In 1854, he accepted President Tappan's offer to become the first director of the Detroit Observatory (named for benefactors based in that city). That building--the first on the campus built expressly for scientific study--

symbolized Tappan's commitment to research. Brünnow worked in Ann Arbor (where he also became Tappan's son-in-law) until 1863. He introduced the teaching of rigorous scientific methods and thus launched what would be called the Ann Arbor school of astronomy--forerunners of the coming revolution of astrophysics.

**"...as the velocity of light has a finite ratio to the velocity of the earth, an observer on the earth sees all stars a little ahead of their true places... In order therefore to find the true places of the heavenly bodies from observations, we must have means to correct the observed places for aberration."** -- From: Franz Brünnow, *Spherical Astronomy* (English edition, 1865)

## LITERATURE: Moses Coit Tyler

Moses Coit Tyler (1835-1900), the major literary historian of his generation, launched his work at Michigan as professor of English language and literature from 1867 to 1881. Raised in Detroit and trained for the ministry, Tyler quickly became disillusioned with his first

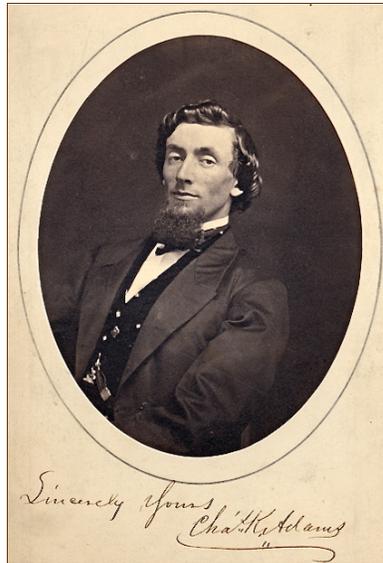


calling and shifted to a comprehensive study of the development of American letters in the colonial period. His voracious curiosity led him to expand the frontiers of literary scholarship into the socio-political matrices of literature. In the cacophony of colonial expression he discerned the emergence of a unified national voice. His massive works--*History of American Literature during the Colonial Time, 1607-1765* (2 vols, 1878; revised in 1897), and *Literary History of the American Revolution, 1763-1783* (2 vols, 1897)--not only established him as the leading authority in his specialty but also cemented literary history as an essential part of the broader discipline. When Tyler followed his friend, Andrew Dickson White, to Cornell in 1881, he went as a professor of history, not of English. And he was a co-founder, with White and others, of the American Historical Association.



**"...in that tremendous year of disenchantment...1765, after all the years of our minority and of our filial obedience had been lived, the scattered voices of the thirteen colonies were for the first time brought together and united in one great and resolute utterance:--an utterance...which meant, among other things, that the thirteen colonies were no longer thirteen colonies but a single nation only, with all its great hopes and great fears in common..."** -- From: Moses Coit Tyler, *A History of American Literature* (1890)

#### POLITICAL SCIENCE: Charles Kendall Adams



Charles Kendall Adams (1835-1902) earned his B.A. and M.A. from the University in 1861 and 1862, respectively, and was promptly hired as professor of history and Latin. He taught at Michigan until 1885 when he left to become president of Cornell University. Adams was much influenced by Andrew Dickson White, his teacher at Michigan. Both argued that history and contemporary society alike should be studied chiefly to bring new insights to bear on great national problems. Such studies, they argued, amounted to what they called political science--the effort to understand the forces governing the development of law, economics, and political institutions. Students who

understood these forces might go on to master them in positions of leadership. Under Adams's leadership, a new School of Political Science was established within the Department of Literature, Science and the Arts. This put Michigan in the vanguard of political science's emergence as an independent discipline.

**"The heart of the people is sound... If the history of the last twenty-five years in our country teaches anything, it is that there is much greater need of good leading, than there is of good following."** -- From: Charles Kendall Adams, "The Relations of Political Science to National Prosperity" (1881)



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## Tappan's Vision - Panel 3

**"The very stretch of our material prosperity reminds us of the possibilities of nobler gifts..."** - Henry P. Tappan

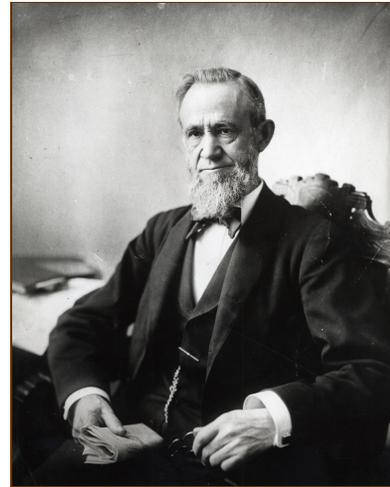
The University's early history coincided with enormous growth and change in American society--industrialization, urbanization, the rise of giant corporations, the growth of mass media and increasing social complexity. As social reality changed, Michigan faculty were in the vanguard of American thinkers who revamped conventional wisdom about social relations, the role of the state, and human nature.

### LAW: Thomas McIntyre Cooley

Thomas Cooley (1824-1898) divided his time between Ann Arbor, where he taught from 1859 to 1898 as professor of law, and the state Supreme Court in Lansing, where he was Chief Justice for twenty years. But his influence spread far beyond Michigan. In his *Treatise on Constitutional Limitations*, Cooley redefined the constitutional doctrine of due process for an industrializing era, insisting the guarantee of due process meant the government's powers must be exercised in accord with the common law, especially its safeguards for the rights of individuals. Raised with a

Jacksonian Democrat's suspicion of the state, Cooley came to believe, as the first chairman of the Interstate Commerce Commission, that only the federal government could protect individual rights against overweening corporate power. His ideas helped to lay the legal foundation for the progressive movement of the 20th century.

**"The strength of law lies in its commonplace character; and it becomes feeble and untrustworthy when it expresses something different from the common thoughts of men."** -- From: Cooley's remarks at Harvard's celebration of its 250th anniversary (1886)



### PHILOSOPHY: John Dewey



John Dewey (1859-1952) was a founder of pragmatism and functional psychology--the bedrock ideas of modern social science--and the leading philosopher of progressive education. His ideas took shape at Michigan, where he taught between 1884 and 1894. In his powerful advocacy of democracy, he considered schools and civil society as the principal forces to ensure an educated electorate. Fully realized democracy, Dewey asserted, would rest not only on the extension of voting rights but on well-informed public opinion. At Michigan,



he published his first two books, *Psychology* (1887), and *Leibniz's New Essays Concerning the Human Understanding* (1888), both

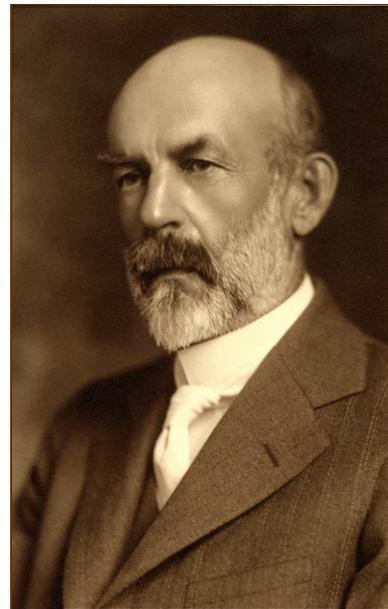
of which expressed his early commitment to Hegelian idealism. *Psychology* explored the synthesis between this idealism and experimental science that Dewey was then attempting to effect. He and junior colleagues at Michigan--James Hayden Tufts, George Herbert Mead and James Rowland Angell, all influenced by William James's new *Principles of Psychology*--began to reformulate psychology, emphasizing the impact of social environment on mind and behavior.

**"[I]t was in Ann Arbor that I began my teaching activities. It was there that my serious interest in education was aroused. I have never ceased to be grateful that my first connection was with a state university in the middle-west. I learned there something of the deep significance of the relation between educational institutions and the social communities which they serve."** -- Dewey to James B. Edmonson, Dean of the School of Education, (1929)



### **SOCIOLOGY: Charles Horton Cooley**

Charles Horton Cooley (1864-1929) was the son of Judge Thomas Cooley, of the Law School. The younger Cooley quickly became a leader among the European and American scholars who were posing fundamental new questions about human nature and the social order. Traditionally, such questions had been posed in religion and philosophy. But Cooley and others came to believe the study of social relations required its own discipline, with special attention to the implications for social improvement. After earning Michigan degrees in mechanical engineering and economics, he joined the faculty in 1892 to teach political science and economics, then shifted to the new Department of Sociology in 1904.



Cooley moved from an important study of transportation networks to the interplay of individual and social processes. In *Human Nature and the Social Order* (1902), he explored the way in which social responses affect the emergence of the self. He referred to this core concept of sociology as "the looking-glass self"--the notion that identity is shaped through a lifelong process of perceiving how one is perceived by others. He extended this analysis in *Social Organization* (1909), a sociological response to Sigmund Freud's theory of the unconscious. Cooley argued that primary social groups such as one's family and play groups--not unconscious impulses--were the primary source of a person's morals, sentiments and ideals.

**"As we see our face, figure, and dress in the [looking] glass, and are interested in them because they are ours...so in imagination we perceive in another's mind some thought of our appearance, manners, aims, deeds, [and] character... We always imagine, and in imagining share, the judgments of the other mind."** -- From: Charles Horton Cooley, *Human Nature and the Social Order* (1902)



### **ECONOMICS: Henry Carter Adams**



When the British philosopher Herbert Spencer proposed that human progress depended on "the survival of



the fittest," Henry Carter Adams (1851-1921), the son of a Christian missionary to the American West, objected. When Spencer said government regulation of business foretold "a coming slavery," Adams argued that, in fact, the good of a free society in the age of big industry depended on enlightened government to ensure genuine competition. These "radical" views got the young Adams ousted from a faculty post at Cornell. But in 1880 he was welcomed to Ann Arbor, where his work

established much of the rationale for the economic reforms of the Progressive Era. He took on additional duties at the Interstate Commerce Commission, developing accounting and statistical systems that were essential to the regulation of railroads. In his later years he concentrated on improving education in business and the social sciences, and he is credited with innovations that would lead to the founding of Michigan's School of Business Administration in 1924, three years after his death.

**"There are many men who presume to think a higher code of morality may be realized in business affairs than is imposed by the unregulated workings of the law of supply and demand."** -- From: Henry Carter Adams, "Relation of the State to Industrial Action" (1887)



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## Tappan's Vision - Panel 4

**"It is in the power of the University of Michigan to elevate the standard of professional education..."** - Henry P. Tappan

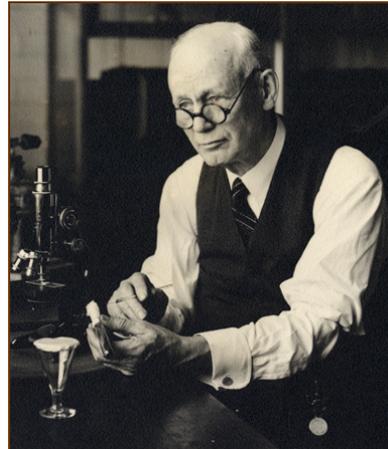
In an urban, industrial society, professional training reflected the growing culture of expertise.



The old reliance on guild-shaped experience--and on "cut-and-try" methods--gave way to a deeper reliance on scientific exploration and verification. This change was broadly evident at Michigan, especially in the Medical School, which became one of the first in the U.S. to teach science-based medicine.

## BACTERIOLOGY: Frederick G. Novy

Frederick G. Novy (1864-1957) was an early prototype of the modern MD/Ph.D., and a symbol of medicine's deepening dependence on laboratory science. Arriving in Ann Arbor from Chicago in the early 1880s, he embarked on a long march through the scientific curriculum. He earned bachelor's and master's degrees in chemistry, then the Sc.D. and the MD in 1891. In Europe he studied with Louis Pasteur and Robert Koch, the pioneers of the germ theory of disease. Returning to Ann Arbor, Novy joined the medical faculty to study and teach bacteriology. Ranging widely across bacteriology, protozoology, virology and immunology, Novy did work that made antihistamine drugs possible; led studies of the bubonic plague in Asia; and invented standard scientific techniques. His passion for study became legendary; indeed, he was a model for the dedicated medical scientist Max Gottlieb in Sinclair Lewis's Pulitzer-winning novel *Arrowsmith* (1925). As chairman of bacteriology from 1901 to 1935, Novy taught a basic course that soon was deemed so important to the success of Michigan's medical students that it was required for graduation. His standards in the classroom were so high that his colleague, George Dock, once remarked that the ambition of every graduating medical student was to see Novy dead. From the first words, his classic guide for students made it plain that he considered hands-on scientific study essential to good medical practice.

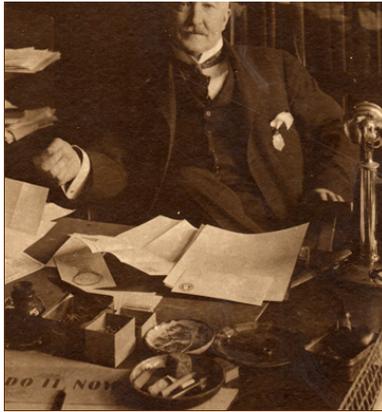


**"No attempt has been made in the following pages at a formal, systematic presentation of Bacteriology. The subject-matter has been arranged entirely with reference to progressive work in the laboratory..."** -- From: Frederick G. Novy, *Directions for Laboratory Work in Bacteriology* (1894)

## ENGINEERING: Mortimer Cooley



Engineering was taught in Ann Arbor as early as the 1850s, but the growing sophistication of machinery demanded a new beginning in the decades after the Civil War. Mortimer



Cooley (1855-1944) came to Ann Arbor as an enthusiastic young naval officer and promptly shifted the program's emphasis from civil and military to mechanical engineering. He also saw the need for students to gain a strong foundation in science. He secured a state grant of \$2,500 to build and equip the University's first mechanical laboratory--a simple, two-story frame-and-brick building. The ground floor housed a foundry, forge shop, brass furnace, and an engine room. Equipment included a

steam engine and a four-horsepower vertical fire-box boiler. To increase the humidity in winter, the engineers melted ice in a pail on the stove. Yet that was where Cooley inaugurated Michigan's study of materials science.

**"How well I remember my first class in this little shop. Six engineers were taking the course. The first lesson was at the forge. I taught them how to build a fire. Then I wanted a piece of iron to heat. At the back door there was a wagon load of scrap of different kinds of metal, and I sent the members of the class to bring me back a piece of wrought iron. Much to my surprise not one of the six could identify wrought iron, cast iron, steel, or anything else in the pile. That incident thoroughly convinced me of the need for practical work to acquaint engineers with the characteristics of the materials they would be using after graduation."** -- From: Mortimer Cooley, *The Scientific Blacksmith* (1947)



### ARCHITECTURE: William Le Baron Jenney

The great symbol of America's coming-of-age as an urban-industrial power was the

William Le Baron Jenney ?

metal-frame skyscraper, and it was the founder of Michigan's architecture program who created the first of the type. William Le Baron Jenney (1832-1907) had been an engineer in the Union Army during the Civil War, rising to become the chief engineer in the Western theater of the war. Afterward he moved to Chicago, where he specialized in the design of commercial buildings. In the late 1870s, he commuted between Chicago, where he designed the landmark, ten-story Home Insurance Building, and Ann Arbor, where he offered the University's first architecture courses. Jenney's architecture reflected his profession's deepening scientific understanding of building materials. His elegant frameworks of metal replaced heavy masses of stone and brick, and thus transformed the urban landscape. His apprentices included such leaders of the Chicago School as Daniel Burnham and Louis Sullivan. Still extant in Ann Arbor is Jenney's Delta Kappa Epsilon "Shant" on East William Street.

[NOTE HERE INSTEAD OF A QUOTE WE WILL USE A PHOTO OF THE HOME INSURANCE BUILDING WITH THE CAPTION BELOW:]

The Home Insurance Building, Chicago Illinois, 1885  
William LeBaron Jenney, Architect

### PATHOLOGY: Aldred S. Warthin



Physicians always had noticed that some families seemed especially vulnerable to cancer. But Aldred S. Warthin (1866-1931), a young pathologist in the Medical School (M.D. 1891, Ph.D. 1893), was not satisfied with an anecdotal understanding of the problem. Warthin's concern had been piqued by a conversation with his seamstress, who told him that her Washtenaw County family



had been wracked by cancer for three generations. Following up with countless field interviews, Warthin became one of the first medical scientists to make a persuasive case that cancer was heritable in humans. His study of what came to be called "Family G," carried on to the present day, produced one of the longest and most detailed cancer genealogies in the world, an essential source for the study of cancer genetics. As director of the pathology lab, professor of pathology, then chair of the department, Warthin also became a leading authority on tuberculosis and syphilis, and he documented the effects of mustard gas poisoning in the First World War, all the while continuing his work on the heritability of cancer.

**"The bald question, directed to the patient himself, as to the**

**occurrence of other cases of cancer in his family, is very often unproductive... The affected individual has very frequently about the same attitude towards revealing any family history of carcinoma that he has towards giving any history of syphilitic infection..."** -- From: Aldred S. Warthin, "Heredity of Carcinoma in Man" (1930)

### LIBRARY SCIENCE: Margaret Mann

The 19th century's broadening streams of knowledge threatened to become a torrent by the early 20th. To bring order to the threat of scholarly chaos, a new professional was born--the academic librarian. Among the most influential was Margaret Mann (1873-1960), a leading professor in Michigan's Department of Library Science (founded in 1926, later to become the School of Library Science, then the School of Information). Mann's *Introduction to Cataloguing and the Classification of Books* (1930) established principles that were fundamental to the field, and it remained the standard text for half a century. In the classroom

Mann--one of the first women appointed to the faculty--was known as "a brilliant tactician," "unfailingly stimulating," who "succeeded in removing the 'dread and terror' reputation often associated with cataloguing instruction."



**"It is the happy lot of the cataloger not only to dwell in this world of books, but to study and examine them so that the readers who frequent libraries may have the benefit of the wisdom, intelligence, and literary talent of those whose works are on the library shelves."** -- From: Margaret Mann, *Introduction to Cataloguing and the Classification of Books* (1943)



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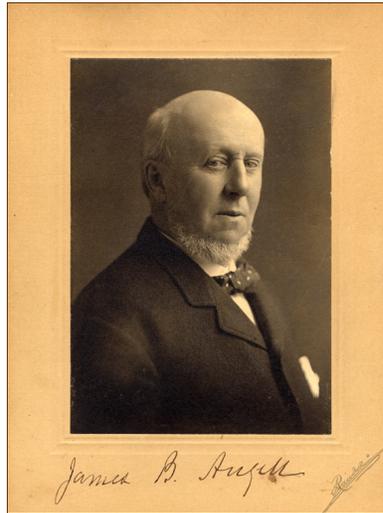
## Tappan's Vision - Panel 5

**"We must take the world just as full as it is."** - Henry P. Tappan

Tappan had defined university-building as a key enterprise in American nationalism. His successors, beginning with James Burrill Angell, fostered the building of bridges to the rest of the world.



### CHINA: James Burrill Angell's Missions



The vexatious issue of Chinese immigration to the U.S. set off a chain of events that would lead to strong and permanent ties between the University and the world's largest nation. In 1880, U.S. Secretary of State William Evarts asked James Burrill Angell, the University's longest-serving president (from 1871 to 1909), to visit Peking to negotiate new terms for Chinese immigration. If Evarts wanted only to prohibit further immigration, Angell said, he should find another man; but if charged with reforming abusive practices, he would serve. In the Chinese capital, Angell not only negotiated a new

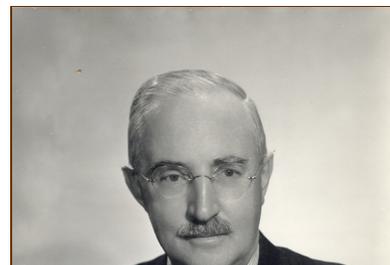
treaty but laid a foundation for many Chinese students to attend Michigan and other American universities. A great exhibit of Chinese cultural artifacts became part of the University's permanent museum display. And U-M graduates began to work in China, many as medical and religious missionaries. Two Chinese students educated at U-M so impressed Regent Levi Barbour, a Detroit businessman, that he established a permanent scholarship fund for Asian women. Most of these Barbour Scholars returned to China as teachers of young women--a significant step in the long process of increasing opportunity for Chinese women. In 1930 U-M established a Department of Oriental Languages and Literature, and in 1961, the Center for Chinese Studies, which soon made Michigan one of the nation's leaders in the field.

**"One representative of the Labour Unions asked [for] prohibition of immigration in order to protect American mechanics. I asked if he could name one mechanic who had been crowded out of employment by the Chinese, and he confessed he could not."** -- From: *The Reminiscences of James Burrill Angell* (1912)



### THE PHILIPPINES: Joseph Ralston Hayden

For more than a century, U-M faculty and graduates have enjoyed a many-stranded friendship with the Philippines, from biologists exploring the archipelago's flora and fauna in the 1880s to the service of two Michigan graduates and former governors--Frank Murphy and G. Mennen Williams--as governor-general



and U.S. ambassador, respectively. The most notable of several authorities on the faculty was Joseph Ralston Hayden (1887-1945), professor and chairman of political science, who was vice-governor of the Philippines under Murphy.

Hayden, who joined the Michigan faculty in 1912, personally clipped and saved an immense collection of materials documenting Filipino society and government-- an especially valuable resource after the widespread destruction of such materials during the Japanese occupation of 1941-45. (It is now housed in the Bentley Historical Library.) His major contribution to scholarship, *The Philippines: A Study in National Development* (1941), is seen as a classic study of the interplay of colonial power and nationalism.

**"...he underestimates the enduring power of Philippine nationalism who thinks that the Filipinos as a whole are at present prepared to defer the realization of their national ideal, even in the face of the dangers with which they are surrounded."**

-- From: Joseph Ralston Hayden, "The Philippines at the Threshold of Independence" (1941)



### GERMANY: James Kerr Pollock



Upon joining the political science department in 1925, James Kerr Pollock (1898-1968) undertook a study of the political spoils system in the U.S.--a project that led to a long exploration of parties and elections in Europe. His study intensified during the rise of the Nazis; he called their early platform "blithering nonsense" and foresaw catastrophe in the weakening of Germany's party system. Soon after the U.S. entered World War II, Pollock began to ponder the problems of remaking Germany after an Allied victory. As a key advisor to U.S. occupation forces in 1945-46, he proposed reforms widely credited with aiding the speedy reconstitution of

democratic government in West Germany. This earned him the U.S.'s highest civilian award, the Medal of Merit.

**"...in politics as in life generally, the use of money must be constantly under surveillance if the fabric of democracy is not to be corrupted."** -- From: James Kerr Pollock, *Money and Politics Abroad* (1932)



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## Tappan's Vision - Panel 6

**"We need to provide the full material of learning. Our library must be enlarged. We need a complete philosophical apparatus. Our collections in natural history and the fine arts must be begun..."** - Henry P. Tappan

Tappan envisioned universities as public treasuries of knowledge and culture. In its libraries and museums... exhibits of art and performances of music and drama... natural sanctuaries and beloved public spaces... Michigan came to embody what Tappan glimpsed.

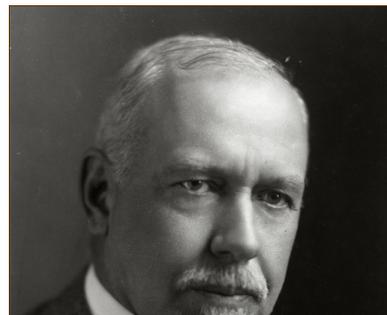
## UNIVERSITY MUSICAL SOCIETY: Albert A. Stanley

The love of music in late-19th-century Ann Arbor spawned three interlocking musical entities--the Choral Union, the School of Music, and the University Musical Society. Henry Simmons Frieze, professor of classics and three times U-M's interim president, was a key figure in the founding of all three. But it was Albert A. Stanley (1851-1932), appointed U-M's first professor of music in 1888, who spurred the development of the University Musical Society into one of the world's great musical organizations. Under Stanley's leadership as musical director, UMS launched the popular May Festival and began to attract the world's great performers and orchestras, from Lily Pons to Enrico Caruso to the New York Philharmonic and the Boston Symphony Orchestra. Stanley also made music an important feature of student life, in part by installing the great pipe organ from the Chicago World's Fair of 1893 in U-M's University Hall (now in Hill Auditorium).



**"The history of a musical instrument--be it ever so rude--represented a great step forward, for here was something which could neither yield [its inventor] sustenance or protection, in fact naught but pleasure."** -- From: Albert A. Stanley, "The Value of a Collection of Musical Instruments in University Instruction" (1908)

## UNIVERSITY LIBRARIES: William Warner Bishop



The interwar period saw enormous growth at the libraries of the major American universities--an inevitable response to the flood of knowledge from new and prolific scholarly disciplines. At Michigan, the great library builder was William Warner Bishop (1871-1955), who was appointed University Librarian in 1915 after serving as head of the Reading Room at the



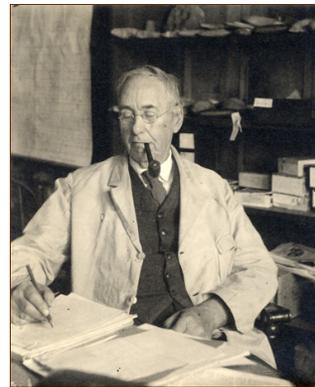
Library of Congress. Bishop, who had been trained in the classics at Michigan, insisted that key members of his acquisitions staff develop genuine expertise in specific subject areas. He led all U.S. librarians in building up international collections. In the 1920s with funding from the Carnegie Endowment he led a team to modernize the

Vatican Library. Bishop was a key architect of the very concept of the general research library--a specialized institution devoted to the advancement of knowledge by professional scholars--and he made U-M's library an exemplar of the type. It was one of the world's great storehouses of knowledge. By his retirement in 1941, he had more than tripled the Library's collection, from 352,000 to 1,134,000 volumes. In the early 1920s the U-M Regent William L. Clements endowed a separate library to house what became one of the world's leading collections of books and manuscripts on the early history of the Americas. And in 1935 the Michigan Historical Collections (now the Bentley Historical Library) was established to preserve the history of Michigan and of the University.

**"We have really had to do here [in the U.S.] what generations of librarians have been doing over a very much longer time in Western Europe."** --From: William Warner Bishop, "Resources of American Libraries" (1938)

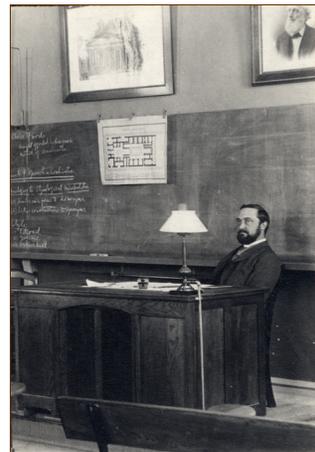
### UNIVERSITY MUSEUMS: Wilbert Hinsdale and Francis W. Kelsey

On either side of the world, two explorers of the past enlarged Michigan's long tradition of archaeology and ethnography. Wilbert B. Hinsdale (1851-1944) became the leading expert on the Native American sites of the Great Lakes after a full career as a physician and professor of medicine. With his personal collection as a base, and relying on an informal network of amateur archaeologists, Hinsdale developed the University's holdings of artifacts and published treatises and atlases documenting the Native American history of Michigan.



Wilbert Hinsdale

In roughly the same era, Francis W. Kelsey (1858-1927)--who had joined the Classics Department in 1889 and taught the first course in archaeology in 1892--mounted five expeditions to the Near East in search of Greco-Roman influences among the early Christians. His work exemplifies the emergence of a more scientific and systematic approach to archaeology; it also led to the establishment of the Kelsey Museum. A Museum of Art was organized in 1907.



Francis W. Kelsey

**"The lands about the Aegean Sea present every variety of landscape [and] an endless variety of atmospheric changes. Here one finds dawn and twilight, hazy vistas and storm-scenes, of matchless beauty and impressiveness... Placed amid such surroundings, the Greeks naturally developed a highly poetic mythology."** -- From: Francis W. Kelsey, *An Outline of Greek and Roman Mythology* (1889)



**"...the Great Trail...was a continuous path between tidewater, the Great Lakes, and the middle parts of the Mississippi... For uncounted years moccasin-footed Indians, then Indians upon ponies, soldiers mounted and on foot, pioneers...all upon some mission or other--war, adventure, trade, chase, exploration, home-seeking--passed over this trail." -- From: Wilbert Hinsdale, *Archaeological Atlas of Michigan* (1931)**

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## Tappan's Vision - Panel 7

**"...human life shows a great many kinds of people, of different colors, ages, sizes and conditions..."** - Henry P. Tappan

Tappan was an advocate of education for women but not of co-education. Yet by 1870, less than a decade after his presidency, Michigan admitted its first women students. Other barriers fell far more slowly. It would be many decades before Michigan opened its faculty to women in



significant numbers; before it admitted women students in numbers comparable to men; before it admitted students of color in proportion to their presence in the population; before it expanded scholarly inquiry to explore and respect the experience of all people.

## AFRICAN-AMERICAN STUDIES: Harold Cruse



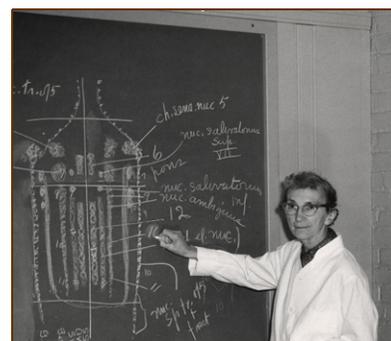
When students of color at U-M demanded courses on black history in 1968, the University responded by hiring Harold Cruse (1916-2005), one of the most influential and controversial African American thinkers of that tumultuous era in race relations. Author of a collection of scathing essays titled *The Crisis of the Negro Intellectual* (1969), Cruse, who was largely self-educated, constructed arguments against both the integrationist ideas of Martin Luther King, Jr., and the black separatism of such figures as Stokely Carmichael and Eldridge Cleaver. Cruse argued instead that African Americans must develop their

own economic and cultural strength on the path toward a just accommodation with a white-dominated society. He became one of the early directors of Michigan's Center for African and African American Studies.

**"...the Negro-American has been catapulted into the role of being the mover and shaker of modern America while putting the Great American Ideal to the most crucial test of its last one hundred years."** -- From Harold Cruse, *The Crisis of the Negro Intellectual* (1969)

## ANATOMY: Elizabeth Caroline Crosby

Elizabeth Caroline Crosby (1888-1983)--"a quiet, retiring, bashful-appearing genius," one colleague called her--came to Michigan as an instructor in anatomy in 1920, and in 1936 she became the first woman named to a full professorship in the Medical School. Over four decades Crosby amassed an estimated six tons of evidence in her quest to map the structure of the brain. Her studies were



distilled into a textbook that remained the standard reference on neuroanatomy for decades, as well as two major texts for neurosurgeons. An acclaimed teacher, she led 38 students to the Ph.D. in anatomy, including a number of women, and she was sought out by colleagues in neurosurgery to explain the structure of the brain to their own students.

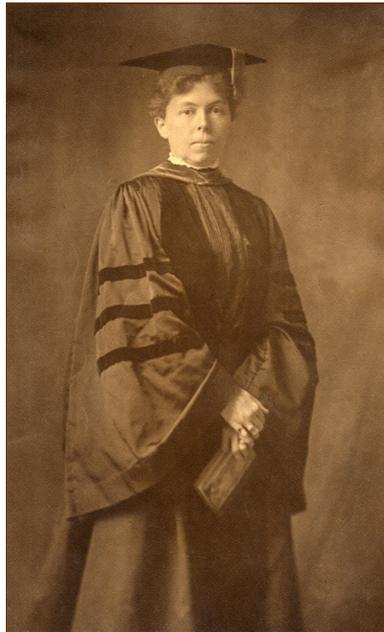
Her labors in basic science, said Dean A.C. Furstenberg, were "of immense practical value to neurosurgery, to ophthalmology, to otorhinolaryngology and to neurology," and were directly responsible for "the prevention of human suffering and the saving of human lives." In 1980 Crosby was presented with the National Medal of Science by President Jimmy Carter.

**"The nervous system has not developed...with the brain of man as its fixed pattern or goal...The ape-like progenitor of man did not have in mind the characteristic human form as a pattern which he should imitate..."** -- From: Elizabeth Caroline Crosby, et al, *The Comparative Anatomy of the Nervous System of Vertebrates, Including Man* (1936)

These changes would re-sculpt the University to fit the liberality of Tappan's original vision. With growing appreciation of human diversity, scholars would create new, interdisciplinary fields such as women's studies, American studies, and African-American studies. These changes demonstrated that the boundaries of formal knowledge are never fixed, but shift to accommodate our changing understandings of the human experience.

Though many years would pass before women became full members of the faculty, the careers of two extraordinary alumnae foreshadowed the enormous benefits that would accrue from women's full participation in intellectual life.

### WOMEN'S EDUCATION: Alice Freeman Palmer



As a teenager Alice Freeman (1855-1902) was engaged to the only college graduate she knew--a teacher at her high school in upstate New York. When she told him she planned to attend college, he advised against it. That ended the wedding plans. She went to Ann Arbor in the fall of 1872 following Madelon Stockwell who in 1870 was the first woman admitted to U-M. After graduating at the top of her class, she taught history at several schools, then joined the all-female faculty at Wellesley College, where she became the protegee of Wellesley's founding president, Henry Durant. Her intellectual and personal prowess was so great that when Durant died in 1882, the trustees named Freeman to the college's presidency, though she was

not yet 30. Freeman quickly became the nation's leading advocate of higher education for women, and she built Wellesley's reputation as a first-class institution. After five years in the job she shocked feminist friends by marrying a Harvard philosophy professor and resigning her post at Wellesley. After a bout with tuberculosis, she threw herself into promoting women's education; joined the Massachusetts Board of Education; and pressed Harvard to admit women on equal terms with men. Then, courted heavily by the new University of Chicago, she agreed to become the school's first dean of women in 1892. But her



efforts to increase women's enrollment alarmed male faculty and students, and the new dean stepped down after only three years-- though by 1898, the proportion of women students at Chicago would rise from one in four to nearly one in two.

**"I have seen girls change so much in college that I have wondered if their friends at home would know them--the voice, the carriage, the unconscious manner, all telling a story of new tastes and habits and loves and interests, that had wrought out in very truth a new creature."** -- From: "Why Go To College," an address by Alice Freeman Palmer as president of Wellesley and the first woman college president in the United States (1897)

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### **INDUSTRIAL MEDICINE: Alice Hamilton**

After earning her medical degree at Michigan in 1893, Alice Hamilton (1869-1970) became the founding figure in the important new field of occupational and industrial medicine. She studied pathology in Germany, conducted research on infectious diseases with the pioneering Simon Flexner, then became professor of pathology at the Women's Medical College of Northwestern University in Chicago, where she lived for many years in Jane Addams's Hull House. Her surveys in Chicago factories demonstrated the poisonous effects on workers of making paint with lead and of manufacturing explosives. In 1919, as the preeminent authority on industrial diseases, she became the first woman appointed to the Harvard faculty (on a condition that she not use the faculty club). Her work on the dangers of exposure to carbon monoxide, lead, benzene, and mercury is credited with saving countless lives.



**"From the first I became convinced that what I must look for was lead dust and lead fumes, that men were poisoned by breathing poisoned air, not by handling their food with unwashed hands."** -- From: Alice Hamilton, *Exploring the Dangerous Trades* (1943)

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## Tappan's Vision - Panel 8

**"There is a knowledge of the stars of heaven, as well as of the stones of the earth... a knowledge of invisible forces as well as of visible motions..."** - Henry P. Tappan

Michigan scientists moved at the frontiers of the 20th-century revolution in the physical sciences.



### CHEMISTRY: Moses Gomberg



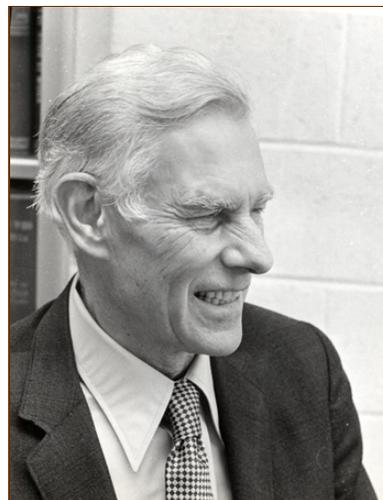
Denied admission to U-M's introductory course in physics in 1886 because he never had studied trigonometry, the young Moses Gomberg (1866-1947) returned three days later and asked to be quizzed in the subject. He had mastered it in 72 hours. He was born in Russia and emigrated to Chicago in 1884. After earning a B.S. in 1890 and a Ph.D. in chemistry in 1894, Gomberg joined the U-M faculty and became one of the world's great organic chemists. He discovered the existence of organic free radicals and synthesized the elusive compound tetraphenylmethane. Gomberg served on the chemistry faculty until 1936, including

an influential decade as chair.

**"It is not serious if someone finds your interpretation of an experiment to be wrong. But it is disgraceful if there are errors in your experiments."** -- From: Moses Gomberg to his students

### PHYSICS: David M. Dennison

A few routine summer visits to U-M by important physicists in the early 1920s grew into an important series of symposia on theoretical physics, the branch of science that transformed our understanding of the universe and led, with profound consequences, to the development of atomic energy. U-M's David M. Dennison (1900-1976), a student of Niels Bohr, was a central figure in the program. From 1929 until 1941, long before their names became famous around the world, such figures as Hans Bethe, Wolfgang Pauli and Enrico Fermi met in Ann Arbor to exchange findings and teach small seminars. Faculty and graduate students flocked to these short courses--J. Robert Oppenheimer on the general quantum theory of transitions, for example, or Niels Bohr on quantum mechanics. Year



after year, experts noted articles in the physics journals that had grown out of summer discussions in Ann Arbor. The symposia were curtailed with the coming of World War II. During the war he received a citation from the US Navy for his work with theVT (radio Proximity) Fuse.

**"These were tremendously exciting days--the old concepts and inconsistencies were being swept away and the new quantum theory was emerging."** -- From: David M. Dennison, "Recollections of Physics and of Physicists During the 1920s," *American Journal of Physics* (1974)

### GENETICS: James V. Neel



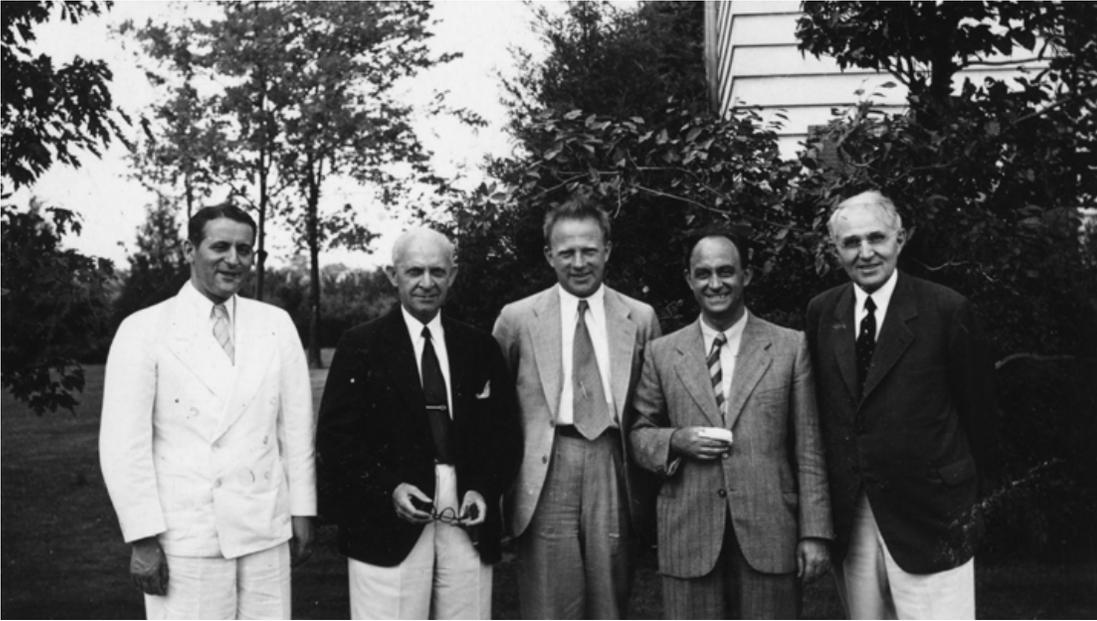
Building on a long U-M practice of tracking patterns of disease in families, James V. Neel (1915-2000) became a leader in the postwar revolution in genetic medicine. Joining the U-M staff in 1946 as an assistant in the invertebrate biology laboratory, Neel was instrumental in founding the Department of Human Genetics in 1956 and was its chair for 25 years. He uncovered the genetic cause of sickle-cell anemia and proposed the landmark theory of the "thrifty gene," which says that some disease-causing genes may have helped the ancestors of human beings to survive

shortages of calories and salt. Outspoken and controversial, Neel, serving as a member of the Atomic Bomb Casualty Commission, studied the families of atom-bomb survivors to see if high exposure to radiation caused genetic change--he thought the damage minimal--and surveyed genetic patterns among native South Americans untouched by industrial society. He also wrote widely and with deep concern about "the wanton exploitation and degradation of Planet Earth."

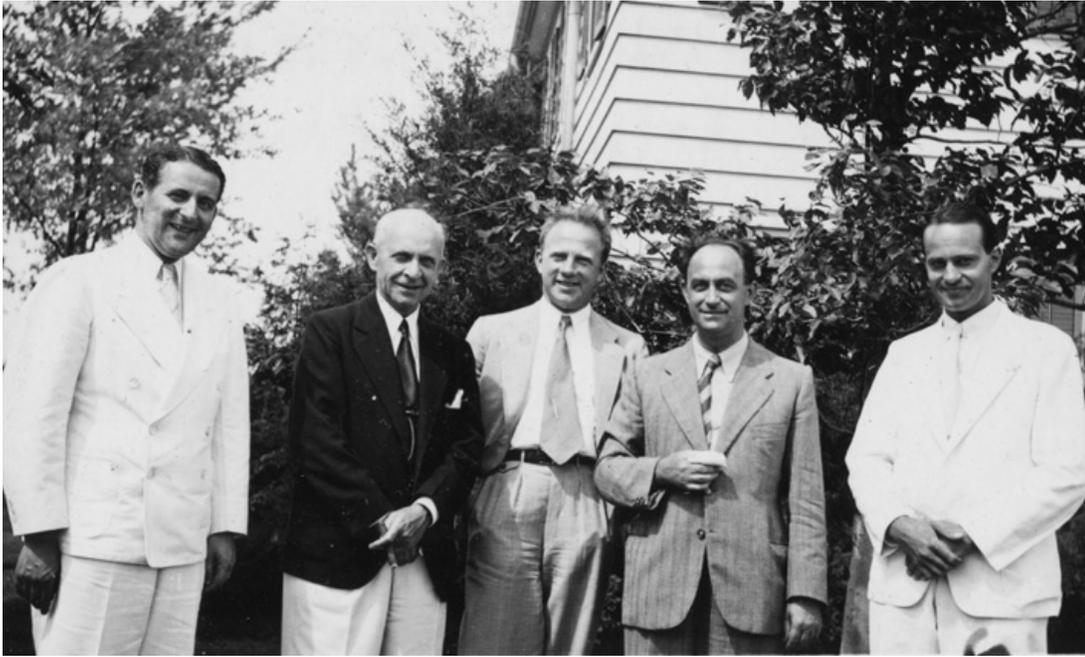
**"We are the first species to hold its future in its own hands. We may not meet the responsibility that statement implies, but there is no way we can escape it."** -- From: James V. Neel, *Physician to the Gene Pool* (1994)



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## Tappan's Vision - Panel 9

**"[We must pursue] a knowledge of man himself--the being that knows."** - Henry P. Tappan

After the second World War the university faculty embraced the challenges posed by political, social, and economic complexity. Again, it was the application of the principles of scientific investigation, as anticipated by Tappan, that characterized the path-breaking research produced.

## INSTITUTE FOR SOCIAL RESEARCH: Rensis Likert and Angus Campbell

Building on the foundation established by John Dewey, Charles Horton Cooley and their colleagues, Michigan created what is arguably the most influential center for the social and behavioral sciences in the world--the Institute for Social Research. It was the brainchild of one of Cooley's students, the social psychologist Rensis Likert (1903-1981) and

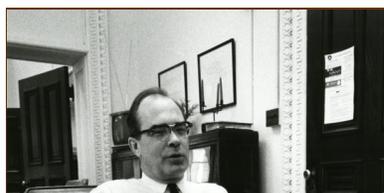


Likert's colleague, Angus Campbell (1910-1980). In the 1930s and '40s, the two had made important contributions to the New Deal and the U.S. effort in World War II through the use of statistical sampling. With the war over, they came to Ann Arbor in 1946 to establish the first great academic program to apply survey techniques to the understanding of social behavior. Attracting researchers from psychology, economics, political science and sociology, The Institute for Social Research undertook path-breaking studies of an astounding array of topics, including consumer behavior; voting and legislative behavior; quality of life, religion; child-rearing; social stratification; group dynamics; the nature of work; drug and alcohol abuse; mental health; civil disorders; and mass communication. The founders of ISR were prodigious scholars in their own right. The publication in 1960 of *The American Voter*--in which Campbell and his co-authors demonstrated the impact of psychological and attitudinal factors on voting--was one of a string of ISR-backed studies that transformed understandings of social behavior. Likert was a pioneer in the study of how people behave in organizations.

**"...the partisan choice the individual voter makes depends on...a field of psychological forces..."** --From: Angus Campbell, et al, *The American Voter* (1960)

**"The greater the loyalty of a group toward the group, the greater is the motivation among the members to achieve the goals of the group, and the greater the probability that the group will achieve its goals."** -- From: Rensis Likert, *The Human Organization* (1967)

## ECONOMICS: Gardner Ackley



Gardner Ackley (1915-1998) had hardly been appointed to the economics faculty in 1940 when he left Ann Arbor for war-time Washington. There he earned his stripes as a hands-on economist in the U.S. Office of Price



Stabilization, which regulated the U.S. economy through the turmoil of World War II. In the postwar era, Ackley became a key proponent of the Keynesian idea that government must use fiscal and monetary policies to "fine-tune" capitalist economies. John F. Kennedy appointed him to the President's Council of Economic Advisors in 1961; then, as chairman of the Council from 1964 to 1968, Ackley advised President

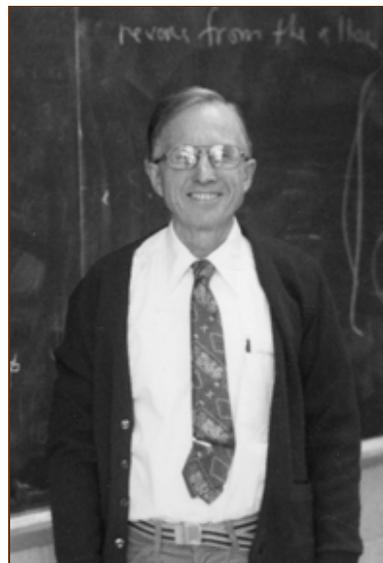
Lyndon Johnson that the war in Vietnam and the domestic programs of the Great Society could not be sustained without tax increases. Johnson's failure to heed Ackley's warning has been credited with the crippling inflation of the 1970s.

**"I had a general resentment against the [Great] Depression, and felt there must be a way, and that economics must be it."** -- Gardner Ackley



### COMPUTER SCIENCE: Arthur W. Burks

As a student, Arthur Burks (1915-2008) melded scholarly interests--philosophy, mathematics, physics--in an uncanny foreshadowing of the digital age that he helped to bring about. During World War II he helped to create ENIAC, the first general-purpose electronic computer. As a member of Michigan's philosophy department, which he joined in 1946, and a close collaborator with the computer pioneer John von Neumann, Burks continued to think about the theoretical problems of "logical machines"--devices that might replicate and magnify the computational skills of the human brain. In the late 1940s he helped to create one of the nation's first academic programs in computing; it later became the full-fledged Department of Computer and Communication Sciences, with Burks as its first chairman.



**"Inasmuch as the completed device will be a general-purpose computing machine it should contain certain main organs relating to arithmetic, memory-storage, control and connection with the human operator. It is intended that the machine be fully automatic in character, i.e. independent of the human operator after the computation starts..."** -- From: Arthur W. Burks, et al, "Preliminary discussion of the logical design of an electronic computing instrument" (1946)

### A vision realized... (?)

The legacy of Henry Tappan and those who labored to fulfill his vision of what the University of Michigan might be cannot be measured in mere numbers. But a few numbers do suggest the extraordinary scope of those labors:

- Schools and colleges (Ann Arbor, Dearborn and Flint).....28
- Degrees granted, 1845-2009.....713,127
- Annual enrollment.....58,000
- Annual research expenditures.....\$1 billion
- Instructional staff, all campuses.....8,400
- Major buildings.....586

- Libraries.....24
- Museums.....10
- Student organizations.....1,400

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